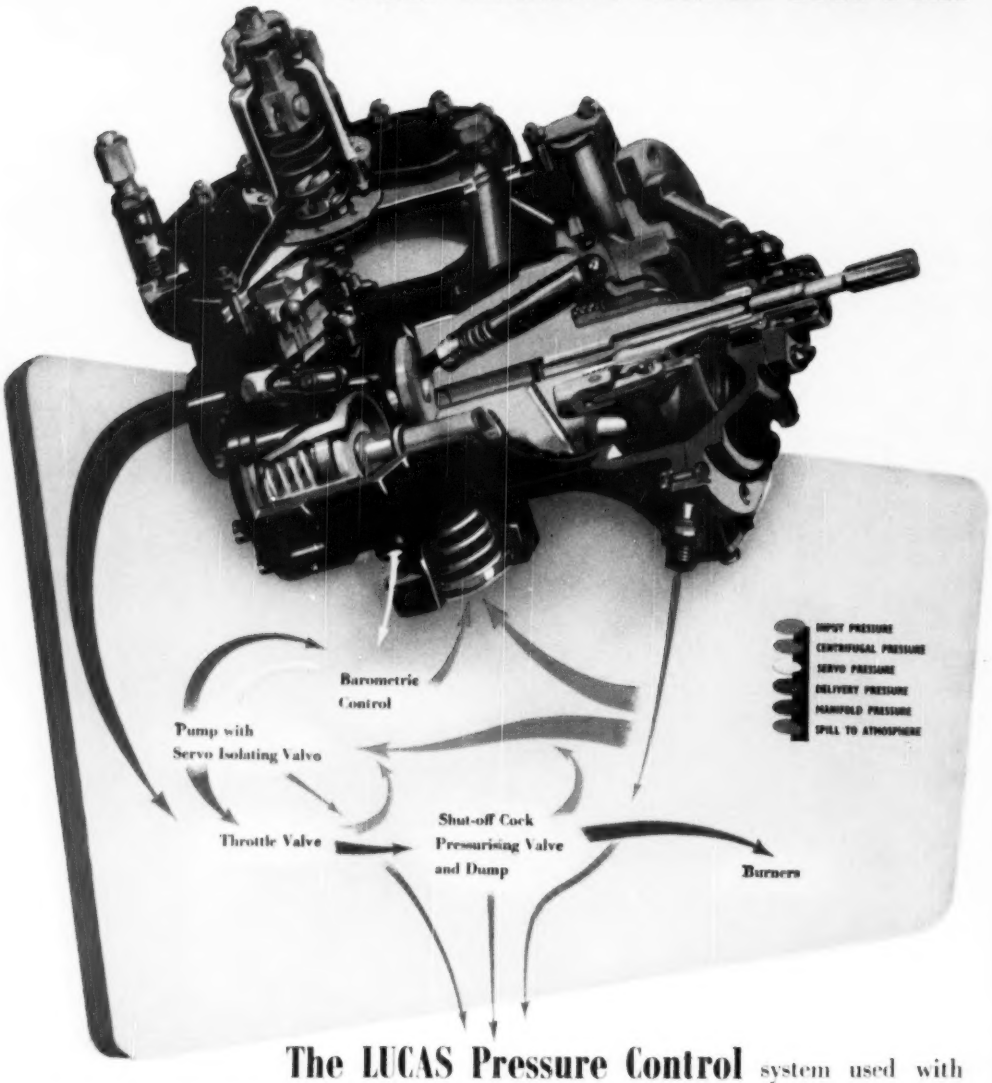
FLIGHT
and
AIRCRAFT ENGINEER
OF THE ROYAL AERO CLUB
BRITISH EUROPEAN AIRWAYS
ROTOL
PROPELLERS
ON THE VIKING · VALETTA · VARSITY · VISCOUNT

LUCAS VARIABLE STROKE FUEL PUMP

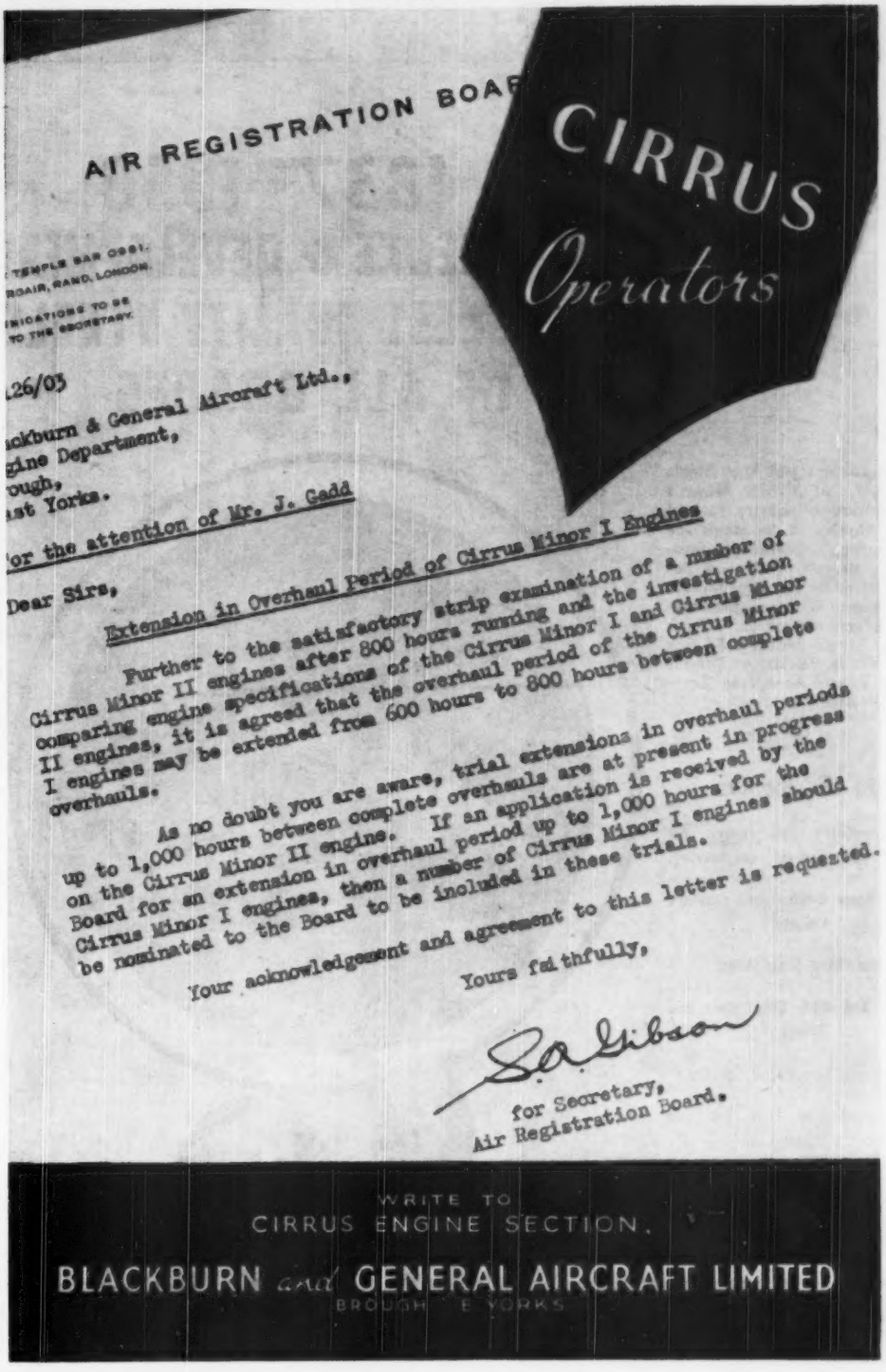


The LUCAS Pressure Control system used with this pump on the larger centrifugal type engine is illustrated in schematic form as a complete system.

Lucas pumps were fitted to the first operational jet aircraft in 1942. Today, Lucas fuel pumps and associate equipment are used on gas turbines in most countries of the world.

LUCAS

JOSEPH LUCAS (GAS TURBINE EQUIPMENT) LTD. BIRMINGHAM



AIR REGISTRATION BOAR

TEMPLE BAR 0081.
ROAIR, RAND, LONDON.

NICATIONS TO BE
TO THE SECRETARY.

426/03

ckburn & General Aircraft Ltd.,
gine Department,
ough,
st Yorks.

For the attention of Mr. J. Gadd

Dear Sirs,

Extension in Overhaul Period of Cirrus Minor I Engines

Further to the satisfactory strip examination of a number of Cirrus Minor II engines after 800 hours running and the investigation comparing engine specifications of the Cirrus Minor I and Cirrus Minor II engines, it is agreed that the overhaul period of the Cirrus Minor I engines may be extended from 600 hours to 800 hours between complete overhauls.

As no doubt you are aware, trial extensions in overhaul periods up to 1,000 hours between complete overhauls are at present in progress on the Cirrus Minor II engine. If an application is received by the Board for an extension in overhaul period up to 1,000 hours for the Cirrus Minor I engines, then a number of Cirrus Minor I engines should be nominated to the Board to be included in these trials.

Your acknowledgement and agreement to this letter is requested.

Yours faithfully,

S. A. Gibson

for Secretary,
Air Registration Board.

CIRRUS
Operators

WRITE TO
CIRRUS ENGINE SECTION,
BLACKBURN *and* GENERAL AIRCRAFT LIMITED
BROUGH · E. YORKS

FIRTH BROWN 1837-1950

EXPERIENCE & DEVELOPMENT IN HIGHEST QUALITY STEELS OF ALL GRADES

As manufacturers of Alloy Steels for High Duty, Firth Brown's contribution to industry is world wide, whether it be steels for engineering, shipbuilding, automobile, aircraft, road and rail transport or for the most minute mechanisms of the precision engineering industries. Firth Brown Steels were used for parts of the "Brabazon," built by the Bristol Aeroplane Company Limited.

LIST OF PRODUCTS

Forgings—Light and Heavy for special and general engineering.

Forged Steel Drums and Pressure Vessels.

Hardened Steel Rolls.

Carbon and Alloy Steel Bars and Billets.

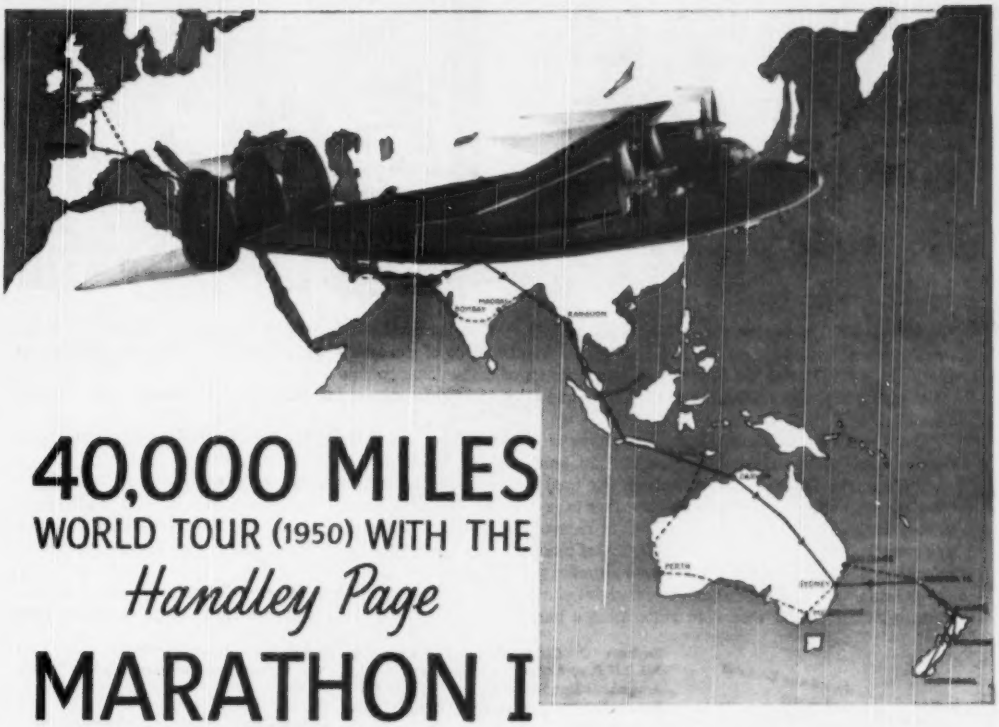
Tyres and Laminated Springs.

High Speed and Tool and Die Steels.

Steel Castings.

Write for the Firth Brown Buyers' Guide or further particulars.

THOS. FIRTH & JOHN BROWN LTD., SHEFFIELD



40,000 MILES
WORLD TOUR (1950) WITH THE
Handley Page
MARATHON I

On 14th January, 1950, from the Blackbushe Airfield, the first production-type Handley Page Marathon 1 Aircraft (A-ALUB) took off for a 40,000 miles sales tour to the Southern Hemisphere—equalling an airline operational period of 600 hours.

From start to finish (2nd May) no trouble of any kind was experienced with the Palmer wheels, tyres, brakes, Silvoflex flexible pipes, etc. The pilot (Mr. Hugh Kendal) and his officers paid special tribute to the landing gear, which was considered to have put up a spectacular performance because so much more was asked of the standard Palmer Components than is normally expected.

250 landings and take-offs were made at aerodromes in temperature extremes of 30°F (Bagdad) and 110°F (Calcutta). The amazing performance of the Palmer tyres is evidenced by the fact that the runway surfaces included concrete, tarmac, bitumen, steel plates, coral, asphalt, turf, oiled strips, sand, etc.

PALMER EQUIPMENT ON MARATHON A-ALUB

Main Wheels, Tyres and Brake Assemblies (4)
Nose Wheel and Tyre
C.11 Pneumatic Rams (4)
706.B Brake Control Units (2)
C.43 Pneumatic Control Unit
C.25 Nose Wheel Ram
Silvoflex (fireproof) flexible hose assemblies in the fuel, oil, pneumatic and Graviner systems of the four de Havilland 'Dove' engines.

THE PALMER TYRE LIMITED
Penfold St., Edgware Road, London, N.W.8

Palmer

TYRES · WHEELS · BRAKES · SILVOFLEX

Estate manager covers 1,000 miles in a day . . .

"The trouble with my job has always been an extended line of communications. It's pretty hard to get around on a rocky, wooded island with no railways, and precious few roads. Some of the estates and plantations, which my company is operating, are 400 miles 'up country' and the business of maintaining contact with the stations in the furthest districts under my control was costing me a lot of sleep and a lot of time. I suppose, too, this lack of liaison cost the company a lot of money.

"But that's all over now. Since the company brought a Sealand out here, and based it on the capital (where we do the office work), I've got around quite a bit. Yes, I should think I cover about a 1,000 miles on some days.

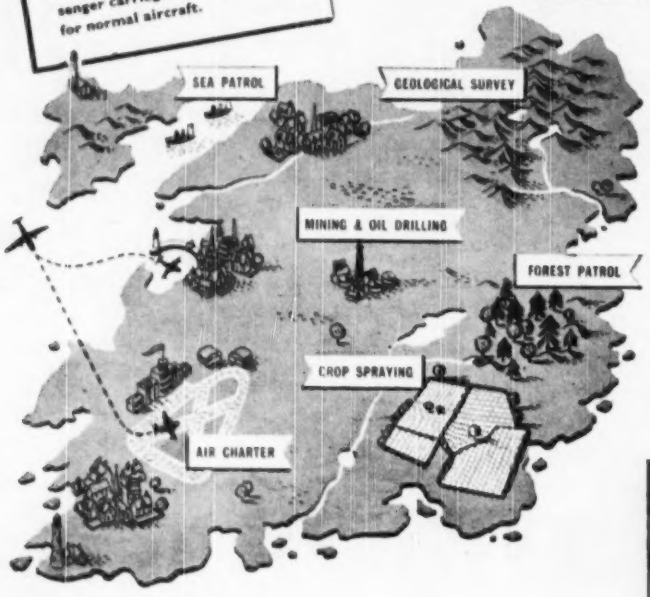
"It's a remarkable plane this Sealand. I've used it continually for all kinds of work. Its main value to me is that it takes my office right to the places where work is in progress on the crops. We can put it down even in the thickest jungle, as long as there's about 800 yards of lake or river to operate from. Sometimes, on the trip back, we fill her up with a tidy amount of freight — I've taken 1,000 lbs. of pineapples over the 500 miles from the East to the West Coast, without refuelling. And that's getting better than 6 air miles per gallon.

"Once a week I use the Sealand on forest fire patrol, and before harvest time we fit her up for crop spraying. It doesn't seem to matter what I want—an ambulance, a bus, or a truck—the Sealand is always ready to go anywhere."

● Shorts have designed the Sealand for all areas in which the conditions of this island are repeated, when freight and passenger carriage is impracticable for normal aircraft.

Engines: *2 Gipsy Queen 70, developing 345 B.H.P. each at take-off.*
Accommodation: *5/8 seater.*
Speeds: *196 m.p.h., all-out level. 155 m.p.h., max. weak cruising.*
Range: *600 statute miles at 127 m.p.h. with 1,000 lbs. freight. 315 statute miles at 127 m.p.h. with 6 passengers and baggage plus 80 lbs. of freight.*
Service Ceiling: *21,000 feet.*
Rate of Climb: *840 feet per minute at sea level.*
Take-off: *Water 835 yards. Land 450 yards.*

All figures at an all-up weight of 9,100 lbs.

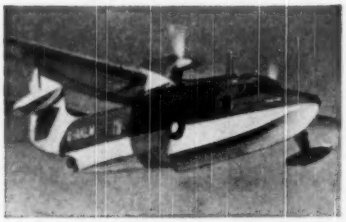


★

IN any difficult region that is being developed — in Northern Canada, in South America, or in the East Indies, for example — the Short Sealand is the logical answer to the problem of transporting men or freight. It is as well suited to private owners and industrial concerns as it is to air-charter and feeder-line companies.

★

SEALAND
AMPHIBIAN



Shorts THE FIRST MANUFACTURERS OF AIRCRAFT IN THE WORLD

SHORT BROTHERS & HARLAND LTD., QUEENS ISLAND, BELFAST

THE FOKKER S.13*

IS FITTED WITH

DUNLOP

tyres

wheels

brakes

*Crew Trainer equipped with two Pratt and Whitney Wasp Engines

DUNLOP SERVES WORLD AVIATION

DUNLOP RUBBER CO. LTD. (AVIATION DIVISION) COVENTRY

THE

FAIREY 17

ANTI-SUBMARINE AIRCRAFT

(ARMSTRONG SIDDELEY "DOUBLE-MAMBA")

★

FIRST AIRCRAFT TO FLY POWERED BY TWIN TURBINES WITH CO-AXIAL PROPELLERS

19-9-49

FIRST PROPELLER-TURBINE POWERED AIRCRAFT EVER LANDED ON THE DECK OF AN AIRCRAFT CARRIER

19-6-50

THE FAIREY AVIATION COMPANY LTD., HAYES, MIDDLESEX

FLIGHT
and
AIRCRAFT ENGINEER

First Aeronautical Weekly in the World

Founded 1909

No. 2166. Vol. LVII. THURSDAY, 29 JUNE 1950

EDITORIAL DIRECTOR
G. GEOFFREY SMITH, M.B.E.

EDITOR
MAURICE A. SMITH, D.F.C.

ASSISTANT EDITOR
H. F. KING, M.B.E.

TECHNICAL EDITOR
C. B. BAILEY-WATSON, B.A.

ART EDITOR
JOHN YOXALL

Editorial, Advertising and Publishing Offices :

DORSET HOUSE,
STAMFORD STREET,
LONDON, S.E.1.

Telegrams : Flightpres, Sedist, London.
Telephone : Waterloo 3333 (60 lines).

Branch Offices :

COVENTRY
8-10, Corporation Street.
Telegrams : Autocar, Coventry.
Telephone : Coventry 5210.

BIRMINGHAM, 2.
King Edward House,
New Street.
Telegrams : Autopress, Birmingham.
Telephone : Midland 7191 (7 lines).

MANCHESTER, 3.
260, Deansgate.
Telegrams : Iliffe, Manchester.
Telephone : Blackfriars 4412 (3 lines). Deansgate 3595 (2 lines).

GLASGOW, C.2.
26b, Renfield Street.
Telegrams : Iliffe, Glasgow.
Telephone : Central 4857.

SUBSCRIPTION RATES
Home and Overseas : Twelve months £3 1s. 0d. Six months, £1 10s. 6d. U.S.A. and Canada, $10.00.

BY AIR : To any country in Europe (except Poland). Twelve months, £5 1s. 0d. Six months, £2 10s. 6d. Canada and U.S.A. Six months, $16.

In this issue:

B.A.F.O. Display - - - 752
For Diverse Duties - - 753
Six Nations at Antwerp 754
Air-Race Impressions - 759
Brabazon Visits London - 762
A Way they Have in the Navy - - - - - 764
Deck-landing Long Ago 766
R.A.F. Display Guide - 768

New Vintage—and Old

EPICURES will remember the years 1945 and (particularly) 1947 in the immediate post-war period for the excellent wines they produced. All districts, with scarcely an exception, enjoyed an outstanding vintage. There is evidence, moreover, that for two or three years consecutively, conditions may be nearly ideal for the grape, and, in fact, this was the case after the war.

We may excusably use this truth as a simile: In aviation circles the year 1949, culminating in the S.B.A.C. Exhibition, was indeed a vintage one for aircraft of almost every type. The Farnborough Display bore witness to exceptional design-skill and productivity, and, by the same token, there is no reason at all to suppose that there will be any falling-off in 1950. In spite of the admitted difficulties which have been, and still are, confronting this country, its aviation industry continues to make healthy progress. Therefore, to those who have been remarking that the S.B.A.C. Show will not this year bring forth much of a harvest, we say "You are wrong." Already several new types have made their appearance, among them the Fairey and Blackburn anti-submarine aircraft, the D.H. Heron, Meteor variants and the Handley Page and Percival basic-trainers, while during the last fortnight alone two more, the Hawker P.1081 experimental fighter and the huge Blackburn and General Aircraft G.A.L.60 transport, have made successful first flights. The last-named, second only in size (among British aircraft) to the Brabazon, is of a type for which the need is becoming increasingly apparent. There is every indication, moreover, that several more new designs of very great importance are shortly to take the air; in fact, there is good reason to look forward to a display and exhibition every bit as satisfactory and stimulating as that witnessed last year.

Far from detracting from the aircraft industry's exhibition at Farnborough in September, the Royal Air Force Display, very soon to be staged at the same airfield, will form, from the point of view of the industry, a most appropriate adjunct to it, in addition to the primary purpose of parading the R.A.F. before the nation. On this occasion, the prototypes of the last few years will show their qualities in service.

With thoughts turned to successful aircraft of the present and near-past, the recent achievements in races of the smaller and older sporting aircraft come to mind. During the King's Cup Race, some new 100-km records were set up, and this and other races have been won by machines which, though built in pre-war years, are still performing admirably. Of necessity such luxuries as racing specials have had to be neglected for a time, but it is pleasing to learn that the sole surviving Mew Gull may be repatriated from France. Miles aircraft will, it seems, predominate again in many of this year's racing events, and word has already been received of a new Miles light-twin design. It is to be hoped that this will be the first of a new series which will rival the most popular forerunners.

A Signal Occasion

As events of the kind we have discussed above, and many others, fall into place in aviation history, it is the duty of this journal, gladly undertaken, to record them. At times, the process involves much more than the subsequent description of the event itself : the importance of the occasion demands special and appropriate treatment of the whole background.

An outstanding example will be next week's revival of the Royal Air Force Display, which Flight intends to mark in a particularly fitting manner by the publication, a week from to-day, of a special, greatly enlarged Royal Air Force Number.

Dated Thursday, July 6th, this will be an out-of-the-ordinary issue in a great many respects. With the concurrence of the Air Minister and the Chief of the Air Staff, the Air Ministry and the various Commands have willingly co-operated by making available information and facilities which will enable us to present a unique review, in words and pictures, of the R.A.F. to-day.

Thus, the aims of the Service, in general and in particular, will be expressed in special messages from Members of the Air Council and from Air Officers Commanding-in-Chief ; the duties of each of the Commands, and of a number of smaller formations, will be explained in detail ; aircraft and armament, both of to-day and of the past, will be reviewed ; and the pre-war Hendon Displays will be recalled. Particularly fine photographs, some reproduced in full colour and others in gravure, will supplement the descriptive material, so that the whole issue will constitute a reference-work of lasting value.

B. A. F. O. DISPLAY

Exhibitionism par Excellence at Gütersloh: Aircraft, Tanks Bombs and Rockets

Front-rank spectators included, left to right: Air Chief Marshal Sir James Robb, C.-in-C., A.F.W.E., Lt. Gen. Sir Charles F. Keightley, C.-in-C., B.A.O.R., and Air Marshal Sir Thomas M. Williams, C.-in-C., B.A.F.O.

ORIGINALLY planned for June 15th, the second air display by the British Air Forces of Occupation, at Gütersloh, about 35 miles west of Münster in the British Zone of Germany, had to be postponed because of bad weather until Tuesday, June 20th. Somewhat naturally, this diminished the number of spectators, but even so, there was a healthy attendance—of the order of 10,000, mostly troops of B.A.O.R.—and in compensation for previous ungraciousness, the weather was magnificent.

Proceedings opened with an inspection of the guard of honour by the C.-in-C. Air Forces, Western Europe, Air Chief Marshal Sir James Robb, K.C.B., K.B.E., D.S.O., D.F.C., A.F.C., who then took the salute at the march-past. Thereafter, the flying events got under way spot-on the advertised time with a demonstration of aerobatics by F/L. Carson, M.C., in a Grunau Baby sailplane. Gliding is a very popular sport in B.A.F.O., and this display by the C.F.I. of the Gütersloh Gliding Club earned the applause of a critical audience. As the little sailplane landed, a Horsa glider cast off the tow-rope from its Dakota tug at about 1,000ft down to leeward of the field and, landing a trifle short, rolled to a stop a little distance from the enclosures; the nose was swung open, a jeep and a pair of signals trailers were unloaded, hitched up and, with the crew of four men aboard, were rapidly driven away. As this event was finishing, a pair of Spitfire 14s, one with a forward-facing F.52 camera fitted into a modified drop-tank, and the other with an ordinary F.24 oblique camera, flew over and photographed the gathering. Immediately the aircraft landed, the photographs were processed by a mobile field photographic section.

Sixteen Mosquitoes in squadron boxes of four in line-astern next made their appearance, as the first item in their programme of demonstrating air drill, and were followed by a couple of Chipmunks from the Central Flying School in an instructor and pupil act—which was remarkable for the beautifully polished flying by the instructor and the equally skilled ham-fistedness of the "pupil." Two sections, each of four Vampires, then followed in what was, for many spectators, the highlight of the purely flying side of the display. For the first time in public, one saw formation aerobatics by jet aircraft tied together, one of the sections flying in box formation with the leader and wing men linked by thin ropes; the man in the box was, of course, free. This section alternated with their colleagues, and between them virtually covered the gamut of formation manœuvres, both in terms of sticking close together whilst convoluting and, by contrast, changing formation during loops and rolls: a beautiful exhibition.

After the contrasting section-fly-past of the sixteen Mosquitoes, this time in echelon starboard in line-astern, individual aerobatics were demonstrated by P/O.s Bruce and Moorhouse, both in Vampires. There was little to choose between the performances of these pilots, although P/O. Moorhouse had, perhaps, the more difficult task in executing a vertical 8, a lazy 8 and a bunt. The last-named manœuvre is uncomfortable enough in a slow aircraft; in a quick machine like a Vampire it must be tough. The Vampire individualists then gave place to F/L. Chandler and Pilot II Blake in Meteor 7s who, in their turn, showed the agility and precision with which twin-jet types could be disported. Their first effort was perhaps the most startling—a half roll immediately after take-off and an inverted climb-away. Another rather nice manœuvre was a complete roll at the top of a loop. At the end of their act Blake flew past at 115 m.p.h. with everything out whilst Chandler nipped smartly across at something like 600.

An American contribution to the afternoon's entertainment was provided by a section of four F-80 Shooting Stars, led by Captain Vince Gordon, and known as "The Skyblazers." These chaps were good, and whilst there is no doubt that the cruciform plan view of the F-80 enhances the apparent tightness of formation—particularly box formation—the Skyblazers' station-keeping was first-class. Inevitably, one is given to making a comparison with the same sort of show put on previously by the Vampires and, in this connection, we feel impelled to state that neither the R.A.F. nor the U.S.A.F. need indulge in any heart-searching; both Services can feel proud of their respective members. One of the Skyblazers' items is, however, particularly worthy of mention. Known as the "bomb-burst," it entails a shallow high-speed dive in box formation; then, on the pull-up, the leader climbs and rolls, the wing men branch off at 45 deg, rolling and climbing, whilst the man in the box flies straight ahead doing a series of high-speed slow rolls: most spectacular.

After a 20-minute interval, the second part of the programme was devoted to an illustration of the way in which modern aircraft can give support to army land forces. A set-piece, consisting of three blockhouses, a bridge, and an enemy headquarters building surrounded by a gun area, formed, respectively, targets A, B and C in the middle of the airfield. The situation at the start was that the leading elements of an armoured force represented by four tanks and four 25-pounder guns, were held up in their advance by fire from the enemy strong point at target A. Gunfire from the 25-pounders directed by Capt. O'Brien in an Auster was impressive but, according to the programme, was supposed to be unsuccessful, and an air strike was called for. The first element of the R.A.F. contribution was a low-level bombing attack by eight Mosquitoes, which had a go at target C with 60-lb instantaneous-fused bombs dropped from about 250ft, and jolly exciting it was to watch, too.

As the low-levellers streaked away, another eight Mosquitoes came in to make shallow dive-bombing attacks on the same target. By this time, the enemy headquarters was looking distinctly the worse for wear, and the work of the Vampires which followed seemed almost superfluous.

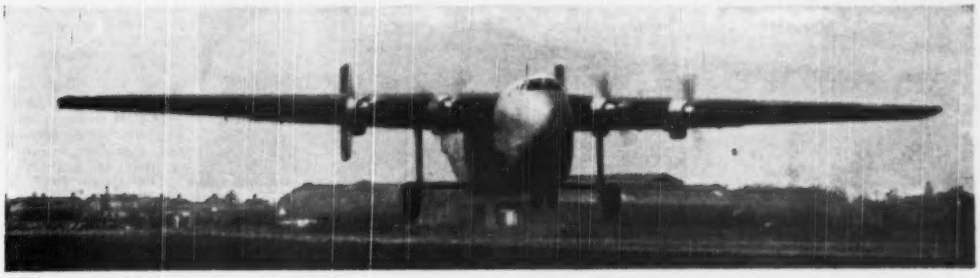
By this time, one had got rather used to the noise of diving aircraft and explosions, but when another eight Vampires came in and made a rocket attack on target A, most of the spectators, including ourselves, really did sit up and take notice. Certainly, the rockets were only 60-lb concrete-headed practice projectiles, but the whooshing crack and subsequent hissing roar as they streaked down to the target was immensely impressive. So much so, in fact, that the following steep dive-bombing attack carried out by two flights of Sea Furies was anti-climatic. Having shown very effectively the enormous destructive power of which a modern air strike is capable—the whole thing only lasted 12 minutes—air power was then handed on to the Army, and Major B. W. Briggs, M.C., from the Demonstration Company, Airborne Forces Depot, led a stick of ten paratroops in a jump from a Dakota at about 700ft. The paratroops carried normal equipment, suspended in valises about 20ft below them and, having all landed successfully, made their advance, together with the tanks and guns, past the now ineffective blockhouses, over the bridge and to the equally-demolished enemy headquarters area.

The final programme event of the afternoon was a fly-past by the 73 aircraft in the display, the 28 Vampires passing overhead in three formations spelling out the letters "R.A.F." Not content with having virtually monopolized the limelight, these Vampires finished their performance with a final flourish in the form of a formation "break" into the landing circuit—something akin to the Navy's stream-landing; and to see 28 aircraft executing this manœuvre is something to engage the attention.

In a chat to the aircrews after the display, the A.O.C.-in-C., B.A.F.O., Air Marshal T. M. Williams, said that for the standard of flying he had nothing but praise.

FOR DIVERSE DUTIES

G.A.L.60 Takes the Air : Alvis-engined Pioneer : Hawker P.1081 and Meteor Variants Revealed



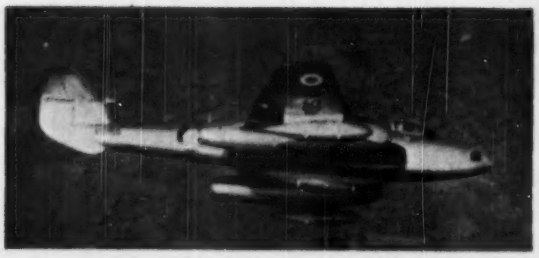
The short initial take-off of the G.A.L.60 (above), and the subsequent successful 40-minute flight, explain the satisfaction registered (right) by the designer, Mr. F. F. Crocombe, F/L. H. ("Timber") Wood, chief test pilot, and Mr. D. G. Brade, head of the test flight section.

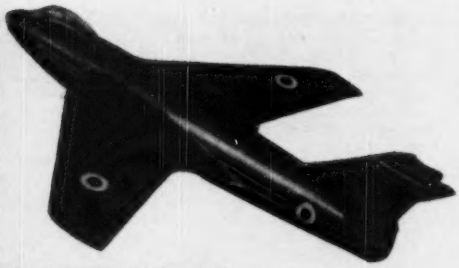
A VERY large and a very small transport aircraft, a jet fighter designed for extremely high speeds, and new Meteor variants are in the news this week.

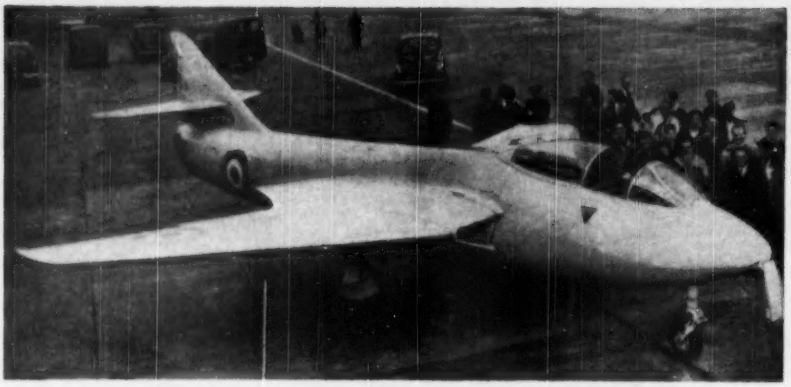
Among British aircraft the Blackburn and General Aircraft G.A.L. 60 military transport is surpassed in size only by the Brabazon I itself; it measures 162ft in span, is 99ft 2in long and 33ft high. The engines are four Bristol Hercules and provision is made for a crew of four. The first flight, on June 20th, was made at Brough with F/L. H. ("Timber") Wood, the manufacturers' chief test pilot, at the controls, assisted by Mr D. G. Brade, head of the test flight development section. On landing, F/L. Wood confided to Mr. F. F. Crocombe, designer of the G.A.L.60, that the bigger the aircraft the better he liked it; the "60" was his biggest and best to date. His initial assessment was altogether most satisfactory, and the take-off and landing runs were remarkably short.

The light transport is the new five-seater Alvis Leonides-engined version of the Prestwick Pioneer, for which its designer, Mr. Robert McIntyre, quotes the following particulars: all-up weight, 5,400lb; maximum speed, 162 m.p.h.; maximum continuous cruising speed at 9,750ft, 151 m.p.h.; range at 5,000ft, 400 miles; service ceiling, 23,000ft; take-off run on grass, 80 yards; landing run on grass, 66 yards. The new Pioneer is now undergoing flight trials on Boscombe Down.

Installation of a Leonides in the Prestwick Pioneer, a recent view of which appears below, enhances performance and appearance alike. The maximum speed is 162 m.p.h.







(Top left): The Gloster Meteor P.R.10 unarmed, high-altitude, photo-reconnaissance aircraft, with long-span wings. Ventral and wing drop-tanks are carried.

(Above): A beautifully finished scale model of the Hawker P.1081 shows all salient features of this ultra-high-speed fighter. *"Flight" photograph.*

(Left): The P.1081 on arrival at London Airport prior to departure for Melsbroek (Brussels) and subsequent demonstration at Antwerp. *"Flight" photograph.*

Depicted at London Airport before leaving for Belgium on June 23rd (and also in model form at the Brussels Show) is the Hawker P.1081. This very beautiful fighter is powered with a Rolls-Royce Nene turbojet (not a Tay as previously reported), and, unlike the P.1052, of which it is a direct development, has back-swept tail surfaces. The swept mainplane is seen to be similar to that of the P.1052 (the airframe, "VX279," is, in fact, that of the second P.1052 prototype), but as will be immediately apparent, a single jet outlet in the extreme tail has superseded the twin, laterally disposed, nozzles which formerly characterized jet fighters designed by Mr. Sydney Camm. It should thus be possible to incorporate an afterburner. P.1081 dimensions are: span, 31ft 6in; length, 37ft 4in.

The first flight of the new Hawker was made by Mr. T. S. Wade at Farnborough on June 19th, when the machine was airborne for "a considerable period."

SIX NATIONS at ANTWERP

Britain to the Fore at a Brilliant Gathering

AN international display of unusual interest was staged at Antwerp-Deurne over the week-end to mark the culmination of the Brussels Aeronautical Salon. Though the flying events were officially scheduled for the Sunday—the usual day for Continental affairs of this sort—a visit on Saturday was a highly rewarding experience.

News of Trevor Wade's 21-minute crossing from London to Brussels in the beauteous Hawker P.1081 had already excited public interest, and early in the morning British representation was swelled by the Vampire aerobatic formation of 247 Squadron and the tip-tanked English Electric Canberra, brought in by W/C. Roland Beamont. Following the Vampires' example, Beamont ran through his demonstration routine for his own—and to the public's—satisfaction. The recollection of the shining bomber streaking thunderously over the lush, flat countryside in the glorious summer weather will surely remain with the Belgians, who had formerly associated the speed and agility displayed with their own cherished Meteors alone.

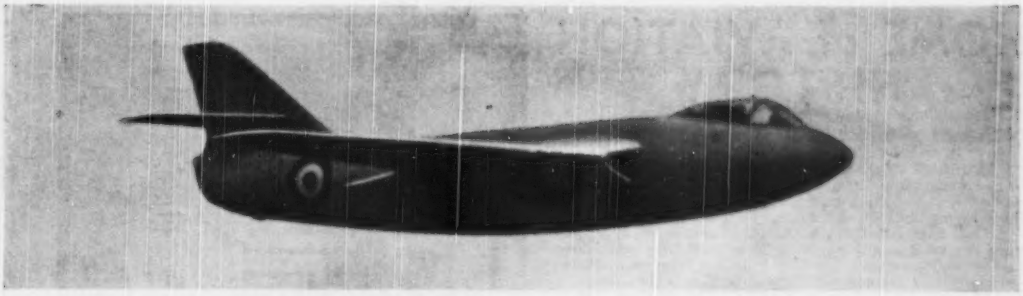
With the silver Vampires, a trim blue Sealand and the gaudy Westland-Sikorsky (which put down a distinguished "fare" in the person of the Belgian Minister of Communications), the grey-and-black Canberra made a brave show for Britain among the burnished and emblazoned visitants from France, America, Holland and Italy. Add the vast red Esso retueller, a dashing patrol of full-dress mounted police, and beauty languishing with chivalry beneath gay sunshades, and the scene may be imagined.

But what a change next morning—teeming rain and all-pervading gloom; nevertheless, Zurakowski scudded in on the Meteor 8. His colleague, Jim Cooksey, had been giving *baptemes de jet* in a Meteor 7 at Melsbroek, and was taking a well-earned day off.

Their cloud background shot with occasional lightning, the tiny French Sipa 902 and Minicab side-by-side two-seaters opened the show with engaging gambollings. The Beechcraft Mentor and Fairchild Cornell military trainers were equally spritely, but Fokker's S.13 twin seemed a little staid, even for a crew trainer. The beauty of the Macchi 320's manœuvres was matched by its elegant design and workmanship, and one was held fascinated by this Italian until the Fouga Sylphe shot up suddenly from—it seemed—underground, and went whistling round with its own particular grace. As always, Westland's S-51 was impeccably presented (during its two weeks of demonstration flying the Belgians have taken it to their hearts), and the S.O.95 Corse and S.O.30P Bretagne respectively showed what a small and a large twin-engined transport can accomplish on full power and on half.

Sondermann, in the silver and yellow Fokker S.11, was at the top of his enviable form; so low were his rapid rolls that he could clearly be seen moving the control column. His was a singular, if somewhat unnerving, performance; but it was equalled for sheer artistry by Beamont's classic display in the Canberra. On daisy-cutting passes both "Bea," and Zurakowski (who followed him in a Meteor 8) caused perceptible concern when dense, flashing vapour curtained the wings of their aircraft. "Zura's" show again included a spin and was altogether quite shattering in its effect. In our own opinion he is unsurpassed as a demonstration pilot.

The French Dassault Flamant flight was just airborne when a green arrow streaked across the sky at hitherto unrivalled speed: the Hawker P.1081 had arrived. In aerobatics, Wade handles his new record-breaking charge fully as confidently and smoothly as he demonstrates its near-relations, the Sea Hawk and P.1052. One could hardly say more.

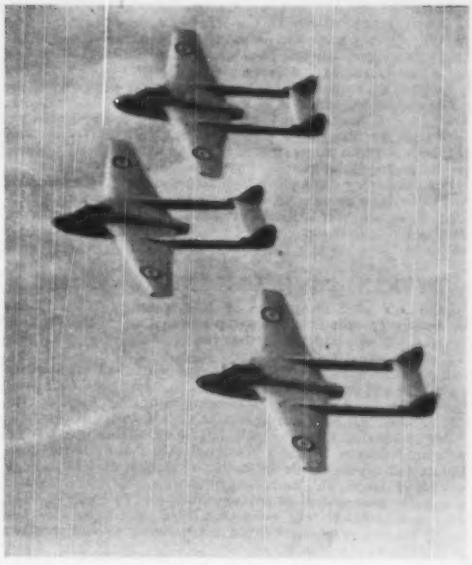


(Above) Trevor Wade introduces the light-green Hawker P.1081. Right: R.A.F. representatives—D.H. Vampire 5s of No. 247 Squadron.

Having touched down, the French Dassaults delighted the assembly by reversing along the runway. Five Dutch Harvards following their dignified display with some pleasing follow-my-leader manœuvres.

The Shooting Stars of the 36th Fighter Bomber Wing, U.S.A.F., rendered their now-famous repertoire, including the hair-raising thread-the-needle cross-over and bomb-burst formation break-up. The pilots were a real credit to their Service; they were Capt. V. P. Gordon, Lts. C. A. and C. C. Patillo (twins) and Lt. L. Danewood. Their British opposite-numbers in the 247 Squadron formation were F/L. F. M. Heggerty, F/L. R. W. Bunyan, A.F.C., F/L. T. W. Kearton, and F/O. N. Carter, A.F.C. "Nick" Carter, back in harness after a too-long spell on Civvy Street, was, of course, the individualist. An inverted run by the flight of three in line-astern was an object lesson in perseverance and showmanship in defiance of clouds and bumps. Incidentally, we have always considered the Vampire's turbojet to be a work of art, but not until Saturday's commentary had we heard it called a "Gobelin"!

Collectively and individually the six Belgian Air Force Meteors were absolutely first-class. Formation aerobatics—



A tight circuit of Antwerp-Deurne by Wing Commander R. P. Beaumont in the English Electric Canberra B.1 twin-Avon bomber.

especially line-astern rolls—and searing "beat-ups" showed complete mastery of high-speed flying technique.

As the burghers of Antwerp trooped tramwards, the Nene-powered S.O. Triton flashed bullet-like above them. Their Sunday outing had been well rewarded.

N.C.O. AIRCREW RANKS

THE Secretary of State for Air, The Rt. Hon. Arthur Henderson, addressing aircrew personnel at R.A.F. Station, Benson, on June 24, recalled that soon after the end of the war a new scheme for aircrew in the R.A.F. was introduced, involving, among other things, a change in rank titles; thus "Sergeant Pilot" became "Pilot II."

He said that for some time the R.A.F. had been aware that this scheme had not been working out as had been hoped, and it had therefore been decided to introduce a new scheme which would include reversion to the traditional rank titles of Sergeant and Flight Sergeant.

Under the new proposals Sergeant rank will be given to every member of aircrew when he receives his wings. These titles would be coupled with the appropriate aircrew designation—for example, Sergeant Pilot, Flight Sergeant Pilot, Sergeant Signaller, Flight Sergeant Signaller, and so on. For the top rank of all, however, it was intended to keep the present title of Master Pilot, Master Signaller, etc. These changes in title would, of course, mean new badges, and those for Sergeant and Flight Sergeant would be based on the traditional N.C.O. stripes.

The full details of the new scheme, which would also provide a definite improvement in the long-service career prospects of aircrew, were being worked out, and Mr. Henderson said that he intended to make an announcement shortly. He hoped, therefore, that any aircrew who might be contemplating leaving the Service in the near future would at least wait until they had heard the details of the revised scheme.

HOME of AVIATION HISTORY

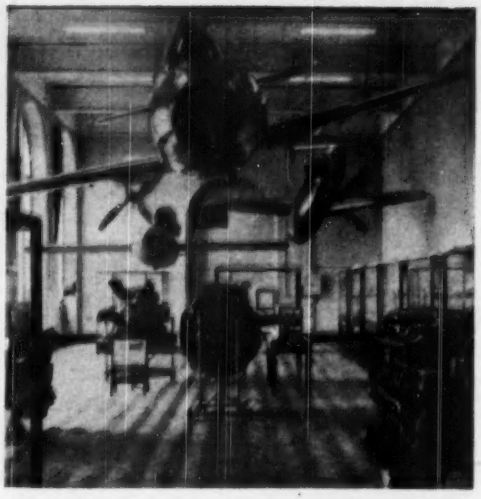
National Aeronautical Collection Rehoused

FORMERLY housed in a somewhat crowded and gloomy part of the Science Museum, South Kensington, the National Aeronautical Collection now has a far more worthy home in the Western Galleries, situated in Imperial Institute Road.

At one time used for the Old Imperial War Museum, and since employed as a store, the galleries have been redecorated and lit by fluorescent lighting, so that they form an attractive background to the exhibits. These, both actual aircraft and engines and models, are arranged in approximately chronological order through the galleries, the farthest room housing such recent acquisitions as the historic Gloster E.28/39 and the Whittle W.1 turbojet. Also on view are a sectioned Rolls-Royce Trent turboprop, a Derwent, a Japanese Baka *kamikaze* and a part-sectioned V.1 flying bomb. Models bring the story of progress up to date, though a Comet model is still awaited.

The collection, which is in the charge of Mr. P. L. Sumner, B.Sc., A.F.R.Ae.S., A.M.I.Mech.E., is open daily (admission free) from 10 a.m. to 6 p.m. (2.30 to 6 on Sundays), and lectures are given at least once a week, while special lectures can be arranged for parties.

The re-opening took place last Saturday, and was preceded on Friday by a private view, among the guests at which were Lord Brabazon, Sir Alliott Verdon-Roe, and a number of other early enthusiasts.



Part of the collection in its new home in the Western Galleries, South Kensington. "Flight" photograph.

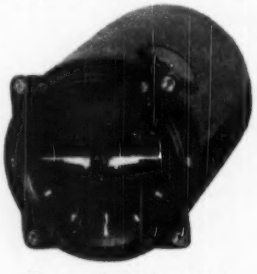
WYVERN 2'S DECK-LANDING TRIALS

SHORTLY after completion of deck-landing trials with the Fairey 17—the first turboprop-powered aircraft to land on a carrier—it was announced that the Westland Wyvern T.F.2 had also undergone carrier trials (aboard H.M.S. *Illustrious*) with complete success. This production version of the Wyvern—a single-seat strike aircraft ordered by the Royal Navy—is powered by a 3,650 h.p. Armstrong Siddeley Python, the world's most powerful turboprop.

The success of the Wyvern's initial deck-landing trials reflects achievement by both Westland, who have produced an aircraft sufficiently docile for carrier operation despite its high power and speed, and Armstrong Siddeley, who have evolved an entirely new system of power-control for the Python. The latter company, it will be remembered, produces also the Double Mamba power-unit fitted in the Fairey 17 and specified for the Blackburn Y.A.S.

IMPROVED ELECTRIC GYRO-HORIZON

FOLLOWING a period of intensive flight trials and research, the Sperry Gyroscope Co., Ltd., has introduced an improved version of its electric gyro-horizon, to be known as the Type H.L.5. The main improvement concerns the presentation, as it has been made possible by the incorporation of the front bearing of the movement in the bezel glass itself instead of on a metal support bracket. The result, which can be seen from the accompanying photograph, is that the indications of the bank pointer and the horizon bar are visible throughout 360 deg of roll. On the H.L.3 model the bank pointer or part of the horizon bar was obscured behind the front bearing support bracket in certain flight attitudes, and this disadvantage has now been removed. The new design also allows the horizon bar and reference-datum model aircraft to be brought closer together, thus reducing parallax errors. A number of small internal refinements have also been made, but the external dimensions remain identical to those of earlier models; the H.L.3 and H.L.5 instruments are, therefore, freely interchangeable. The military counterpart of this instrument, known as the electric artificial horizon Mark 3, has been adopted by the R.A.F., and is in full production.



The new Sperry instrument.

LE TOUQUET RALLY

NOT many of the British pilots and crews needed an introduction to Le Touquet when, at the invitation of the local Aero Club, they flew there last week-end, June 24th-25th. But whether or not they had sampled the hospitality of this pleasant Northern French resort before, all enjoyed themselves immensely—of that there was no doubt. Accommodation, meals and even a mannequin parade, were provided at two of the finest hotels, the Royal Picardy and the Westminster, both of which, however, still show wartime scars.

Thanks are due to the hosts, the Aero-Club du Touquet—particularly M. Sainsard, director manager—for their royal entertainment of the British contingent, many of whom will certainly revisit Le Touquet as soon as they can arrange to do so.

YORKSHIRE AIR RACES

THE YORKSHIRE AEROPLANE CLUB announces preliminary details of the air-race meeting and display which will take place at Sherburn-in-Elmet on Saturday, July 22nd. Lord Pakenham will officially open the afternoon's flying, and the first event—the Yorkshire Aeroplane Club Trophy Race—will begin at about 2 p.m. Various types of piston-engined aircraft will compete in the Air League Challenge Cup Race, scheduled for 3.20 p.m., and the most spectacular contest—between four jet fighters—for the S.B.A.C. Challenge Cup will begin at about 5 p.m.

SCAVENGING FOR SAFETY

MOST people with experience of operating from wartime airfields will recall how shell-fragments lying on the ground menaced tyres and airscrews. A comparable though less serious risk exists in peacetime, with nuts, bolts and other objects playing a similar unwelcome part.

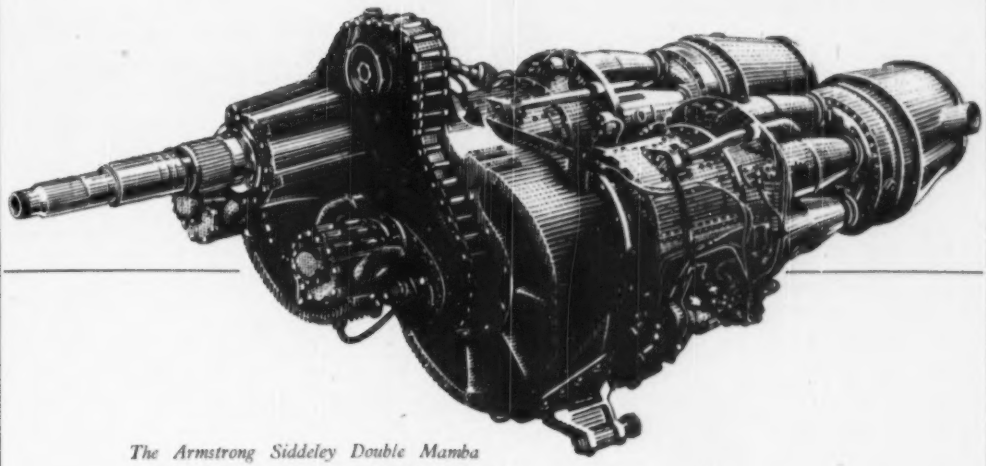
Recognizing the existence of this risk, the General Electric Co., Ltd., London, W.C.2, have designed what may be termed an outsize magnetic carpet-sweeper, a hand-propelled prototype version of which was recently demonstrated at London Airport and exhibited at the Brussels Show, on the stand of Intair, Ltd. This particular model would, of course, be primarily suitable for sweeping factory floors. Designs are now in hand, however, for considerably larger models—up to, perhaps, 8 ft in width—intended for towing by tractor.

Battery-energized, the powerful magnet is mounted horizontally in such a manner that the gap between its pole pieces and the ground can be varied to suit requirements, the maximum gap being 2½ in. To operate the device it is only necessary to set the magnet to the height required, switch on the supply, and move the sweeper over the ground to be cleared. After sweeping, the material picked up can be dropped by switching off over a collection tray.

ARMSTRONG SIDDELEY

*again make history**

The Fairey 17, powered by an Armstrong Siddeley Double Mamba has successfully completed first deck landing trials on H.M.S. Illustrious. This was the first time in history a propeller turbine aircraft had been landed on the deck of an aircraft carrier.



The Armstrong Siddeley Double Mamba propeller turbine with each engine driving its own co-axially mounted and counter-rotating propeller offers all the advantages of twin-engine reliability. It enables the range and endurance of this anti-submarine aircraft to be increased by using one engine for cruising and patrolling, while the full power of both engines is available for combat and pursuit.

DOUBLE MAMBA
PROPELLER TURBINE

* And again, Westland Wyvern Naval Strike Fighter powered by Armstrong Siddeley Python Propeller Turbine, the world's most powerful prop-jet in production, has also successfully completed its first deck landing trials.

ARMSTRONG SIDDELEY MOTORS LTD
PARKSIDE, COVENTRY MEMBERS OF THE HAWKER SIDDELEY GROUP

FOR FORTY YEARS CASTROL HAS BEEN USED BY THE BRISTOL AEROPLANE CO. LTD

HERE and THERE

High-Speed H.P.s

THAT Handley Page technical resources "have been and are fully employed in the design and construction of high-speed aircraft under contracts for the Ministry of Supply" was recently made known at the annual general meeting of the company.

Fairey 17's Carrier Trials

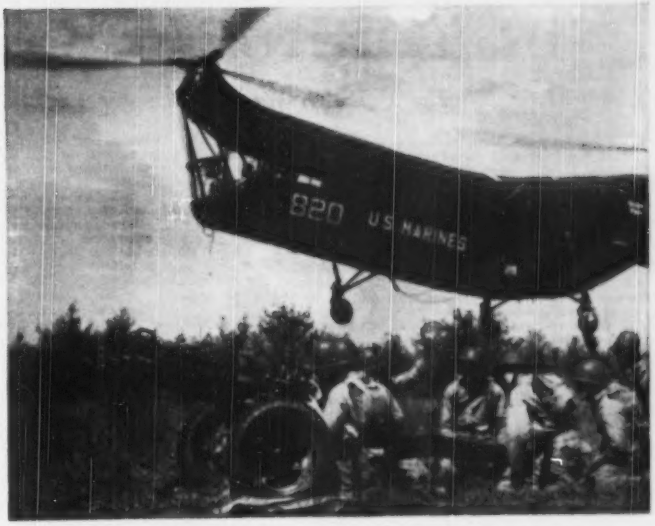
THE Fairey Aviation Company announces that its G.R.17 anti-submarine aircraft has successfully completed its first deck-landing trials on H.M.S. *Illustrious*. The Fairey 17, which is powered by an Armstrong-Siddeley Double Mamba coupled airscrew turbine unit, thus becomes the first turboprop aircraft to land on a carrier. The first deck take-off and landing were made by Lt. Cdr. G. R. Callingham.

Modellers' Big Day

A "CLASSIC" in the model aeronautical world is due to take place this Sunday, July 2nd, when the Northern Heights Model Flying Club holds its annual gala day at Langley Airfield, near Slough, Bucks, by permission of Hawker Aircraft, Ltd. There will be the usual contest for the Queen's Cup, and classes for rubber-driven, motor-powered and control-line models and gliders.

Tearing Off a Strip

JUST in case the Royal Aeronautical Society is looking for a new attraction at its next Garden Party, we commend "an amazing announcement from the office of William P. Kyne, general manager of the Bay Meadows track and a host of the California Air Show." It tells us that "Miss Leslie Charles, 24-year-old brunette . . . . will leap out of a speeding airplane Sunday next and, without thinking of the risk, will drop 10,000 feet, all the while casting off garments like Gypsy Rose Lee."



ASSAULT EXERCISE: The U.S. Marine Corps School at Quantico, Virginia, is experimenting with the use of helicopters as assault transports. Marines are shown during a recent exercise, having just disembarked from a Piasecki HRP-1

Great Expectations

DISCUSSING performance of the Avro Canada CF-100 twin-jet all-weather fighter, S/L. Bill Waterton said recently that "when figures in relation to this aircraft are disclosed they will startle not only the public but aviation people." Later this summer, the CF-100 is expected to make the first non-stop Atlantic crossing by a jet aircraft; it will fly to Britain from Montreal *via* Gander and Shannon.

There has been no change in the position with regard to the withdrawal of overtime working by a section of the printing industry. A slight reduction in the number of pages in *Flight* accordingly continues to be unavoidable. For the same reason, reports of week-end events may in some cases be delayed.

All journals printed in London are similarly concerned to a greater or lesser extent.

King's Cup Newsreel

ALTHOUGH shown in the "first run" cinemas in the latter half of last week, a *British Movietone News* containing pictures of the King's Cup Race and the Brabazon's visit to London is still circulating in various parts of the country, so enthusiasts anxious to see this film (Edition No. 1098a) may still have a chance to do so.

NEWS IN BRIEF

BOTH the Anglo-American Oil Company and Shell-Mex and B.P., Ltd., announced on June 21st that the price of their aviation petrol, grade 100/130, had been reduced by a halfpenny per gallon.

* * *

The Cierva Autogiro Co., Ltd., states that it wishes to acknowledge the large number of telegrams, letters and verbal messages expressing sympathy at the loss of Messrs. H. A. Marsh, F. J. Cable and H. J. Unsworth as a result of the accident to the Air Horse on June 13th

* * *

Mr. R. B. Mancus, test pilot to Boulton Paul Aircraft, Ltd., recently arrived at Cairo in order to demonstrate the Balliol T.2 trainer to the Royal Egyptian Air Force. It is expected that other countries whose governments have shown interest will also be visited while the aircraft is abroad.

* * *

The Editor of *The Pylon*, magazine of the de Havilland Aeronautical Technical School, is anxious to contact former students. The desirability of forming an "old boys' association" among the 1,900 men who have qualified from the school is being considered. Letters should be addressed to The Editor of *The Pylon* at Hatfield.

TECHNICAL TRIO: Seen on arrival at Idlewild, New York, recently, are, (left to right) Air Chief Marshal Sir Ralph Cochrane, Vice-Chief of the Air Staff; Dr. R. Cockburn, Scientific Adviser to the Air Ministry; and A.V-M. C.B.R. Pelly, Assistant C.A.S. (Technical Requirements). They are in America for talks with Air Chief Marshal Sir George Pirie, of the British joint Services Mission in Washington.

IN TECHNICAL CONTROL

The Valuable Work of the Air Registration Board

FOR those whose time, whether for business or pleasure, is spent in the pursuit of matters aeronautical, the initials "A.R.B." undoubtedly have a familiar ring. Although, as the name implies, the Air Registration Board is concerned primarily with the registration and licensing of British civil aircraft (both private and commercial) and of personnel engaged in their construction, maintenance and piloting, this is by no means the extent of the Board's activities. Even a comprehensive list of all its subsidiary (but no less important) duties would serve to give only a general outline of the valuable work which A.R.B. now does.

A brief historical summary of this organization is certainly not without interest and serves the dual purpose of tracing its origin and illustrating its rapid growth.

In the early days of civil flying it was recognized by many that the strong influence of Service aviation and the application of its standards to the design and construction of aircraft intended for civil purposes were undesirable features. The efforts of Sir Frederick Handley Page were primarily responsible for the establishment of an inter-departmental committee in the late 'aos to investigate the possibilities of the complete divorce of civil from Service aviation.

Subsequently, permission was granted to the two Shipping Registers of that time (the British Corporation and Lloyd's) to make recommendation for Cs. of A. on British private aircraft. Each body recruited two small staffs to carry out this work which, in fact, continued until 1932. Such an arrangement naturally resulted in friendly rivalry between the two Registers; it did not continue because both were receiving inadequate returns on substantial investments, and their work, it then appeared, would always involve a financial loss.

When it became obvious that the development of business along these lines would be protracted and expensive the two Registers agreed to collaborate and as a result a Joint Aviation Advisory Committee was formed in 1932. No expansion of their activities took place, however, and the committee was still only in a position to recommend renewals of airworthiness certificates.

In 1933, the Secretary of State for Air appointed a committee under the chairmanship of Lord Gorell; among its members were Capt. Harold Balfour, L./Col. Moore-Brabazon and Sir Frederick Handley Page. After due investigation, the committee made its report in July, 1934, and, after traversing the complex channels of officialdom within the Air Ministry walls, its recommendations finally met with approval. It was agreed that the idea of a separate body representing the principal interests in aviation to control all technical matters connected with civil aircraft was technically and financially practicable.

Such recommendations were incorporated in the Air Navigation Act of 1936, which gave the Secretary of State powers to delegate his functions in respect of civil aircraft to a Board consisting of operational, constructional and insurance representatives, together with two other persons. One of these latter members was to be an "independent person" and the other a pilot with not less than five years' professional experience.

In February, 1937, the A.R.B. was officially created. It was incorporated under the Companies Act of 1929 as a "limited company," although permission was subsequently given by the Board of Trade to omit the word "Limited" from its designation. The total income (derived from licensing and registration fees) was to be applied solely towards the promotion of the Board's objects and no salaries were to be paid to any of its members.

Such was the constitution on which the A.R.B. was founded, and on which, in fact, it still operates to-day.

In its present capacity the A.R.B. can be broadly compared with the Civil Aeronautics Administration of the U.S.A. Its main functions are those of representing Great Britain at I.C.A.O. meetings and contributing to the establishment of international standards of airworthiness, compiling British requirements for all classes of aircraft and engines to agree with such standards, and investigating prototype aircraft and associated equipment for the issue of Cs. of A. To these duties are added those of approving and supervising manufacturers' organizations in connection with the issues of Cs. of A. for series aircraft, surveying aircraft for C. of A. renewal and inspecting radio installations. Operators' maintenance schedules and manufacturers' maintenance manuals are approved, and Flight Manuals prepared for individual types of aircraft. In addition the Board conducts technical examinations of maintenance and flight engineers and commercial pilots for licensing purposes.

The publication of technical literature, reports on defects and accidents, and the keeping of a Register of Civil Aircraft all fall within the scope of the Board. In addition, it investigates and reports on aircraft for insurance underwriters.

In the 13th Annual Report published on June 21st, the chairman refers to the past year as "one of the most eventful in the Board's history." He points out that airworthiness requirements were published for Rotorcraft and numerous investigations made into such problems as pressure-cabin design, gas turbine de-icing and the possible relaxation of landing-gear strength requirements. Several prototype Cs. of A. were granted. The Board's observers took part in tropical trials on the Sealand, Solent IV, Marathon I, Prince and Hermes IV. A.R.B. test-pilots took an increasingly active part in the flight testing and handling trials of prototypes; their flying included 57hr on the Hermes IV. Type testing was carried out on 18 piston-engines and respective power ratings approved, as was a large number of engine modifications. Two gas turbines and 34 new types of airscrew were also approved. During the year the Board assumed responsibility for approving the installation of radio stations in aircraft. The number of British civil aircraft equipped with radio had risen to 945.

Some simplification of procedure for renewal of Cs. of A. is announced for implementation in the near future. In collaboration with the Royal Aero Club the Board approved a Maintenance Schedule for private aircraft. Cs. of A. were also issued for a large number of gliders.

A new system of aircrew licensing was introduced on April 1st, 1949, and the A.R.B. examination procedure was modified to bring it into line with I.C.A.O. standards. A considerable amount of work was also undertaken for foreign and Dominion governments.

The only change in the Council was occasioned by the resignation of Mr. Gerrard d'Erlanger who was replaced by Lord Douglas of Kirtleside. Combined technical and clerical staff now total 253, disposed throughout 23 offices in the U.K. and 7 overseas.

Although the volume of the Board's work has increased considerably its income was unrelated to rising costs, and under new legislation, charges would in future be made to cover the actual cost of the work carried out. Financially, the A.R.B. is supported by operators, constructors and insurers, in addition to the Treasury, but the chairman hoped that long before 1960, the Board would no longer be in need of their assistance.

Annual Luncheon

GUEST of honour at the annual luncheon of the Air Registration Board, held at Londonderry House on June 21st, was the Minister of Civil Aviation, Lord Pakenham. The occasion was of an informal nature, and the speeches, while containing many important and sincere sentiments, were also of the less serious kind.

Lord Brabazon, the chairman, in proposing "the Minister of Civil Aviation," referred to recent A.R.B. activities. He thanked Sir Archibald Rowlands for the Ministry of Supply's complete co-operation and spoke also of the excellent relationship which existed between the A.R.B. and Lord Pakenham and his staff.

Replying, Lord Pakenham said he was pleased to state publicly that in technical matters he was glad to rely on the A.R.B. implicitly and to fall back with confidence upon A.R.B. decisions. He went on to refer to the improved accident-rate figures in comparison with those of the immediate pre-war years, and mentioned also B.O.A.C.'s excellent overall regularity of 98 per cent. Safety and regularity in British airlines, he said, had become a model and example to the world.

In a most amusing speech, Major R. H. Thornton proposed "the guests," and Sir Roy Dobson responded. Sir Roy hoped the A.R.B. would remain 'an independent body, unassailed by governments or industry. It matched the standards of Lloyd's in its special sphere, than which there were no higher in the world. The industry and A.R.B. had received more encouragement and guidance from the ministries during the last two years than ever before. It had taken a little time, but soon it would be possible without embarrassment to stand by the motto "Fly British."

HERCULES OVERHAUL PERIOD EXTENDED

AS a result of operating a trial batch of engines for a period longer than the previous approved life of 900 hours, Bristol Hercules 634s used in Viking aircraft used by Airwork, Ltd., have now been approved by the A.R.B. for 1,000 hours' operation between overhauls. It is learned that engine performance checks and condition of components on strip inspection after 1,000 hours' running were very satisfactory. The units would clearly have been capable of operating for a much longer period. Credit reflects not only upon the Bristol Aeroplane Company's design work and craftsmanship, but upon Airwork, Ltd., for good handling and maintenance.

The Hercules 634s will thus fly for 1,000 hours without attention, apart from routine maintenance—plugs, filters and so on—for there is no top overhaul period for a Bristol sleeve-valved engine and the whole 1,000-hours period is completed without removing or changing cylinder head, sleeve or piston.

B.A.I.C. OCCASION

FOLLOWING their annual general meeting on June 23rd, the chairman and directors of the British Aviation Insurance Co., Ltd., as is their custom entertained many of the leading figures in civil aviation to luncheon at Londonderry House. Mr. A. J. Makins, M.C., chairman, welcomed the guests and said that the members of his company watched closely such developments as the Comet and Brabazon. They liked to feel that they were playing a part in flying, and certainly felt a sense of pride in what aviation had been able to achieve. Sir Miles Thomas, replying for the guests, believed aviation insurance to be run on the same sound lines as marine insurance. Aviation, he said, owed a lot to its sound insurance backing.

Command of the Sea

To keep coastline and sea approaches secure from surprise attack, hours of constant patrolling are necessary. The stalking and destruction of the enemy is an operation demanding constant vigilance and alertness.

In the Avro Shackleton, specially designed and equipped for maritime reconnaissance, the crew work under really comfortable conditions with plenty of room to carry out their arduous duties. Far out over the patrol area, they are as fresh as when they started on flights of the longest endurance.

Shackleton

A V ROE & CO LTD MANCHESTER *Member of the Hawker Siddeley Group*

A Chipmunk for the Royal Danish Air Force

A firm foundation

for a modern air force

D.H. HAVILLAND CHIPMUNK

Selected by seven Governments

D.H. AIRCRAFT

D.H. ENGINES

Seen from *Flight's* Gemini: Some of the visiting and home-based aircraft which crowded Wolverhampton Airport during the race-meeting.

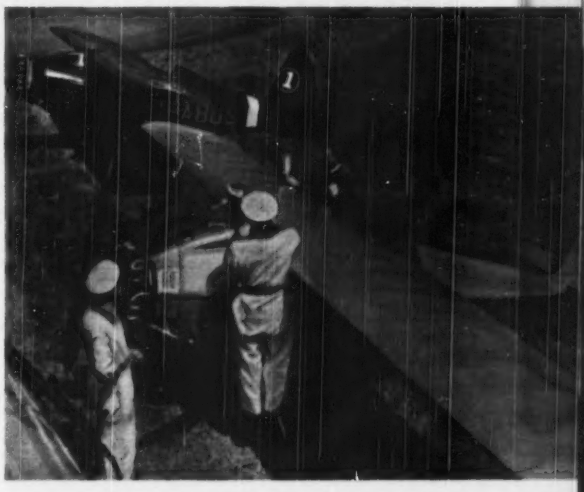
AIR-RACE IMPRESSIONS

More "Flight" Pictures of the King's Cup and Goodyear Trophy Meeting at Wolverhampton

LOOKING back, one can say with confidence that the Wolverhampton race-meeting was a most satisfactory affair, enjoyed and appreciated by competitors and spectators alike. The occasion certainly deserved a larger attendance than the crowd of some 10,000 present on Saturday, June 17th, to witness the King's Cup contest. The Goodyear Trophy race, held the following day, and regarded as more of a domestic occasion, was well supported by the flying fraternity.

In the previous issue, the first report on the meeting was centred mainly on the larger race; it is proposed this week to cover more fully the Goodyear event. In some ways this race was more entertaining than that for the King's Cup. The triangular course was smaller (the aircraft therefore appeared at shorter intervals) and the preliminary heats tended to build up interest in the final.

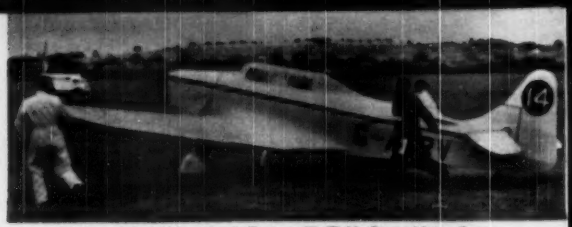
There were 19 entrants—ten of whom flew in the first heat, which was slightly delayed by a sudden rain-squall. First away was 17-stone E. F. Wild (Autocrat), a private



(Inset) Princess Margaret's Hurricane as it took second place in the King's Cup. Below is a general view of aircraft competing in Britain's premier air race. Auster No. 3, pilot G/C. Wheeler, came third.

(Above) The Comper Swifts flown by R. E. Clear (nearer aircraft) and A. L. Cole. Below, Lowry's Chrislea Skyjeep winning the Goodyear Trophy. Dunkerley's Gemini, diving in pursuit, was third.

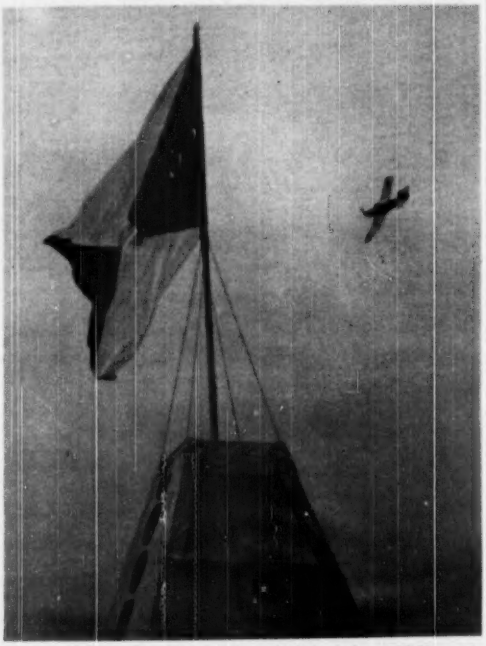
AIR-RACE IMPRESSIONS



Edward Day, 1950 King's Cup winner, and his modified Miles Hawk Trainer III (D.H. Gipsy Major I).

pilot who combines engine-driving with part-time flying instruction. In the previous day's racing he had flown a Gemini. Donald Lowry, flying the prototype Chrislea Skyjeep entered by Mr. E. A. Doran, took off next, followed by a Messenger (A. P. Cryer) and Tony Cole in his Comper Swift. Fifth and sixth starters were P. Woodward and Ron Paine in Hawk Trainers; they were followed by the only woman pilot in the race, Miss Lettice Curtis, flying a Wicko monoplane, which lost ground and retired after two laps. Last to depart were D. F. Ogilvy (Falcon Major), F. Dunkerley (Gemini) and C. G. Alington (Sparrowhawk). Positions tended to remain fairly constant for the first two laps of the heat, but the final lap saw Dunkerley's Gemini, averaging 149 m.p.h., overtake the entire field. The Swift moved up two to finish second, the Skyjeep fell back and followed the Swift into third place, and E. P. Wild's Autocrat finished fourth. At 161 m.p.h. the Sparrowhawk gained sufficient ground to win fifth place and entry to the final.

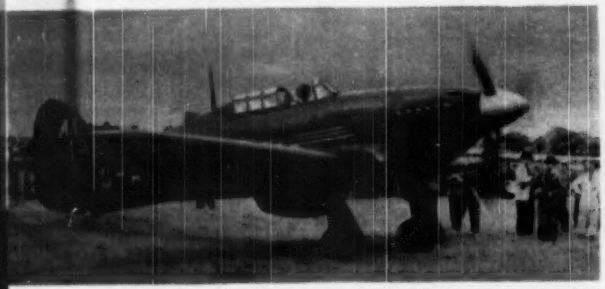
Order of take-off for the second heat was as follows: Tiger Moth (W. Alan); Auster V (D. MacCaskill); Messen-



(Above) Paine's Hawk Speed Six, which lapped at 192.83 m.p.h.

(Below) High-speed types: Miss R. M. Sharpe (Spitfire 5b) and G/C. Peter Townsend (Hurricane 2C).

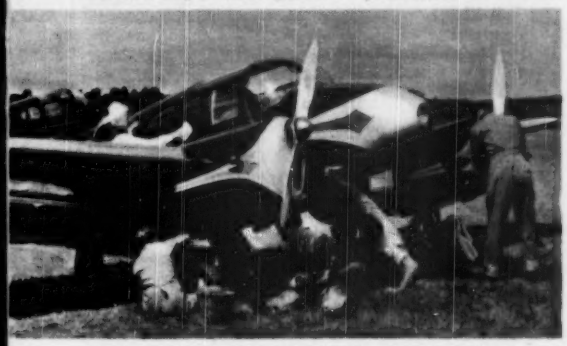
The Hurricane (below) was attractively finished in blue and gold.



Assisted by his wife and daughter, W. P. Bowles applies a final polish to the tail of his Miles Messenger.

C. G. Alington's Sparrowhawk (above) is weighed-in for a 100-km. record attempt. Below is seen G/C. Wheeler's Auster Vb.

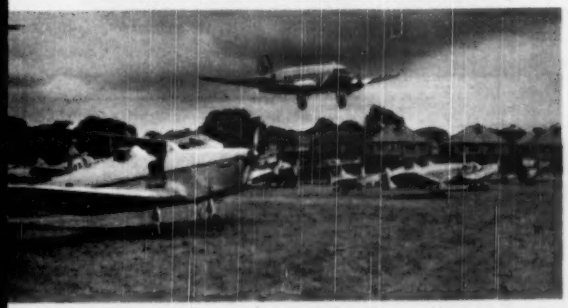
Flying Geminis, F. Dunkerley (left) and J. N. Somers took part in both King's Cup and Goodyear races. In the latter event, Somers beat Dunkerley to second place in a "photo-finish."



Dunkerley's highly polished Gemini (above), with standard Cirrus I engines, maintained the high average speed of 154½ m.p.h. in the King's Cup and gained fifth place.

ger IVA (Dr. F. W. Hamp); Hawk Trainer (L. E. Mason); Monarch (J. Findlay); Hawk Trainer (D. C. Jemmett); Falcon VI (S/L. J. Rush); and Gemini (J. N. Somers). Once again a Gemini took first place, despite the fairly severe handicapping which held this type back in the King's Cup Race.

Somers's average speed was 160½ m.p.h. Second was Jemmett's Hawk Trainer, which put up a good average of 125½ m.p.h., and S/L. Rush (Falcon VI) finished a close third at 155 m.p.h. Mason's Hawk Trainer retained its starting position—fourth—and Dr. Hamp (Messenger), fifth, also succeeded in reaching the final, at 118 m.p.h.



In addition to the racing, a flying display was provided on Saturday. The arrival of the Mamba-Dakota (above) is shown. (Below) Flagged-out ? Mr. P. B. Mayne, chief timekeeper and starter.

This Gipsy-powered Gemini flown by Somers (last year's King's Cup winner) set up a 1,000-km. record of 168.44 m.p.h.

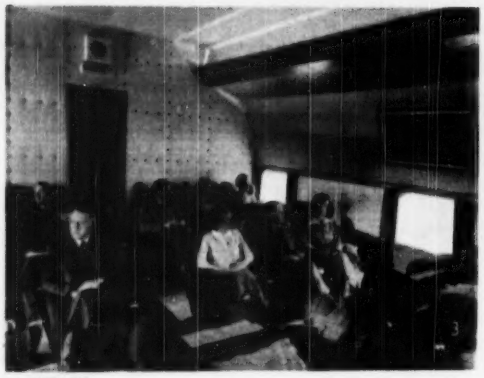
The first five aircraft in each heat then flew in the final. Speeds attained in heats, incidentally, have no effect on final handicaps. Once again there were few position changes in the first two laps. In three cases, however, aircraft were overtaken as the third lap began. Some eight minutes remained between the beginning of the Sparrowhawk's last lap and the appearance of the winner. The end of the Goodyear Trophy Race, surprising and thrilling, caused many compliments to the handicappers' judgment.

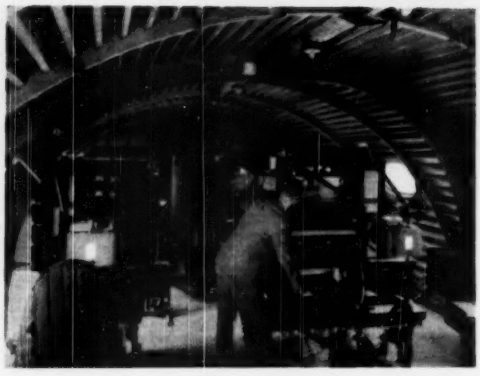
There was a sudden impressive vision of the 116-m.p.h. Skyjeep over the club-house (one could almost see a satisfied expression on its cowling) with two snarling, frustrated Geminis diving low in its pursuit. The Skyjeep held the lead, however, for just long enough. Barely a length separated its pursuers (piloted, in order of finish, by Somers and Dunkerley), and Tony Cole's Swift was not far behind. Fifth came S/L. Rush in the Falcon VI, who had lost a few valuable seconds in deviating slightly from course. Nat Somers, it transpired, had also erred slightly, and probably on this account lost the race (his speed in the final was ¼ m.p.h. less than in the heat). Complete results were tabulated in last week's issue.

Prizes were later presented by Mrs. McConky, daughter of the managing director of the Goodyear Tyre and Rubber Co. (Great Britain). For the winner (D. Lowry) there was £100 and an attractive replica of the Trophy (a silver seagull), together with the £5 awarded to the first finisher on Goodyear wheels, brakes or tyres. J. N. Somers and F. Dunkerley received, respectively, £50 and £25 second and third prizes, supplemented in each case by a further £5 as winners of individual heats.

This year's Goodyear Trophy Race, incidentally, was won at a speed 1 m.p.h. faster than in last year's event—also at Wolverhampton—when the victor was Giles Reid-Walker, flying a Piper PA-12 Super Cruiser (115 m.p.h.).

Slide-rulers : three of the handicappers sort out a knotty problem (or was it one of miles per hour?) Left to right are S/L. R. F. Martin, C. M. Britland and D. J. Lyons.





The BRABAZON *Visits London*

(1) After an official inspection of the interior, Mr. Strauss, Minister of Supply, leads Lord Addison, Lord Pakenham, Mr. Clement Davies, Sir Miles Thomas and Mr. Beswick down the stairway. Lord Brabazon awaits them on the tarmac.

(2) Mr. A. J. Pegg, captain and test pilot of the Brabazon, and his crew, are welcomed by Mr. Roger Pugh, airport manager.

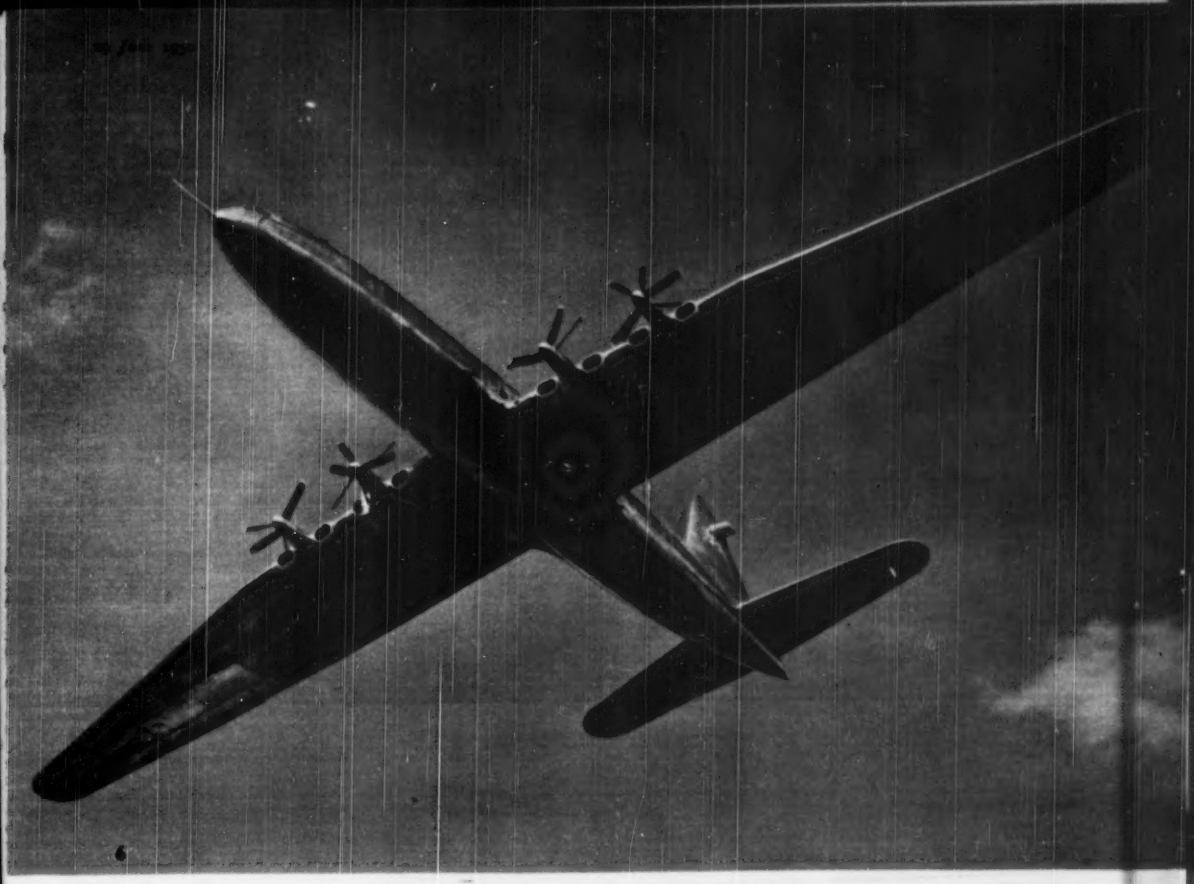
(3) Even those who had previously seen the Brabazon in the making were astonished at the exceptional spaciousness of the aft cabin which now contains temporary furnishing.

(4) The upper centre-section compartment and the larger one immediately forward of it contain twelve automatic recorders.

(5) The Brabazon's 230ft wing span and 177ft fuselage length dwarf the surrounding fuel tanker, fire engines and 'bus.

(6) Both its size and beauty of form can be well appreciated when the Brabazon flies low overhead.

(7) Using no more than one-third of London Airport's main runway, 250,000 lb of Brabazon rise majestically from the ground.



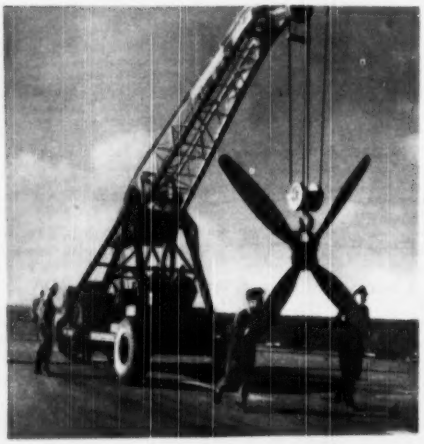
A NEW interest is being taken in the Brabazon's operating economics since the giant itself visited London Airport on June 15th-16th and the more sceptical began to realize its potentialities in service. No doubt was left as to the intention to operate such aircraft, and possibly, later on, to find a job other than test and research even for the piston-engined prototype.

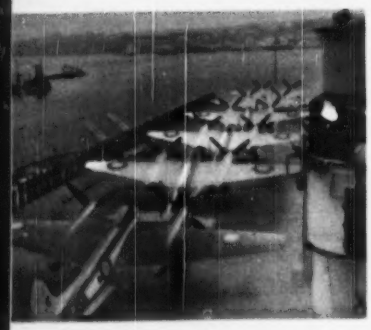
The great talking-point of the Brabazon type is its ability to fly regularly non-stop between London and New York in a very short time and with exceptional comfort for the passengers. It is the only civil aircraft in the world which has been designed to do so. Calculations of direct operating costs produce a figure of about £400 per hour, and the Bristol Aeroplane Company believes that an Atlantic fare of under £100 with two-thirds payload could be economical provided that the proportion of development and associated costs borne by each aircraft is not too high. The cost of a Brabazon to a new customer would be approximately £1 million. The prototype aircraft uses about 2.5 gallons of petrol per mile. In addition to the non-stop Atlantic crossing, a four- to five-day round-the-world, with-the-wind, schedule is now said to be under consideration.

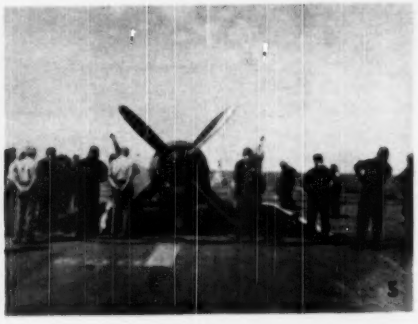
A Way T

Salty Scenes of Naval A
Hornets, Barracudas, Fi
Furies in Action and R
deck Crews at Wo

(1) Fairey Barracudas on the flight deck
(2) The roll and plunge is no deterrent
(3) The smart turn-out by these A.B.s
matched by the ship-shape array of
(4) A mobile crane moves along the flig
(5) A Firebrand emerges on the after
(6) Ease, rather than elegance, is the con
a squadron's return.
(7) Barracudas are seen making an a
and H.M.N.S. *Karel Doorman*, of th
(8) A de Havilland Sea Hornet, with
attachments visible beneath its fold
flight deck.
(9) Urged by the 2,500 h.p. of its Bristol
F.B.11 is seen a second or two befor
(10) The muzzles of a Sea Hornet's four
are glimpsed during routine mainter
(11) Epitomizing the beauty which char
Naval Aviation is this delightfully c
Barracuda returning to the deck o

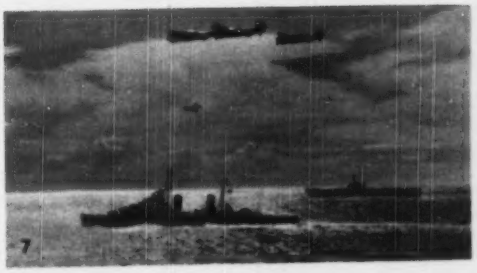






hey Have in the Navy

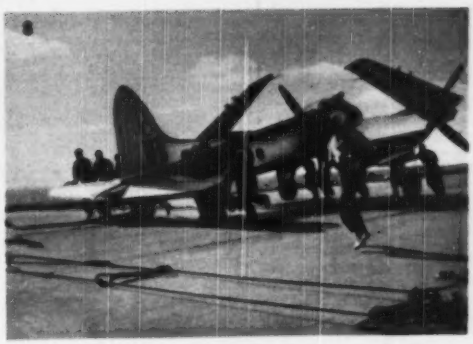
r Life, with Sea
brands and Sea
ose, and Flight-
and Play

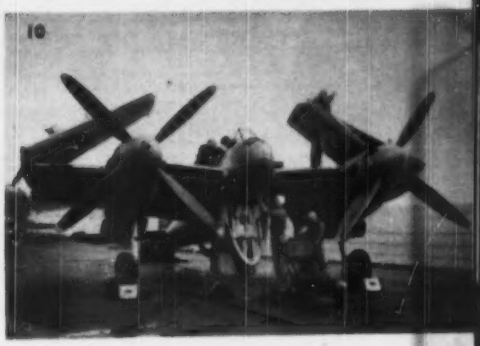

7

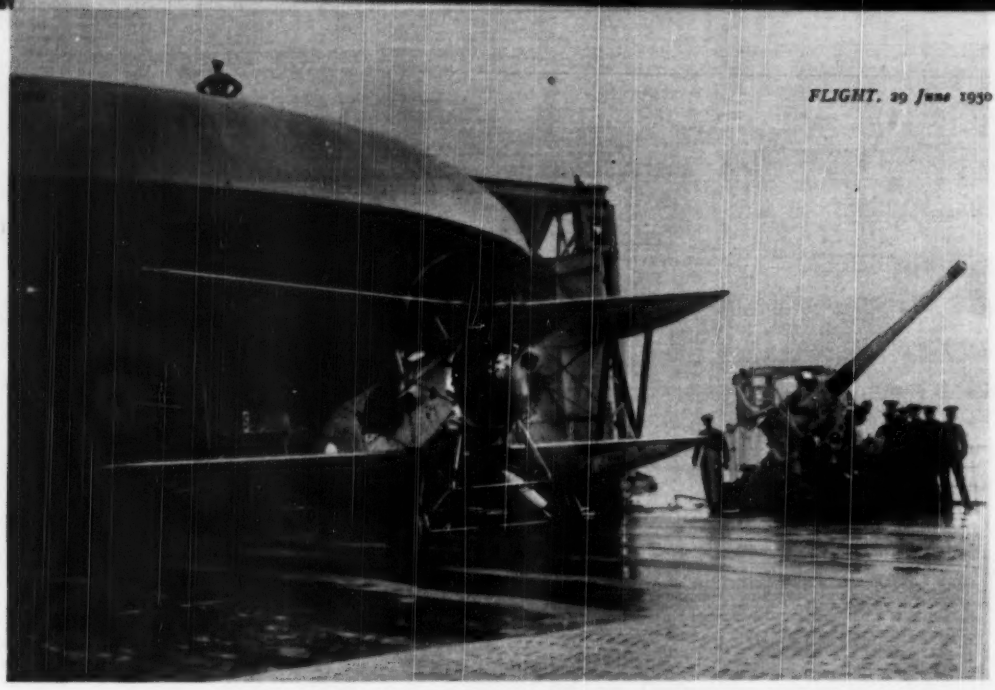
H.M.S. *Implacable*.
the hockey enthusiasts.
oard H.M.S. *Implacable* is
Havilland Sea Hornets.
deck with a new airscrew.
., awaited by its handlers.
rn of the matelots awaiting

ck over H.M.S. *Cleopatra*
Royal Netherlands Navy.
o-length rocket projectile
wings, is ranged on the

ntaurus engine, a Sea Fury
the wheels leave the deck.
mm British Hispano guns
ce work.
erizes so many aspects of
posed picture, showing a
.M.S. *Implacable*.


8


10



"Slip flight used the lower flying-off deck, about 60ft of tapering runway in the bows. . . ." A Flycatcher (Jaguar engine) gets away.

DECK-LANDING LONG AGO

Memories of 1930, When R.A.F. Ground-crews Assisted the Fleet Air Arm

By S/L. H. R. BUNN, M.B.E., A.R.Ae.S.

Illustrated with "Flight" Photographs

I SUPPOSE the Naval pilots who now hurl Vampires and other jet fighters on to and off aircraft carriers accept arrester cables and hooks, flight-deck batsmen and Naval mechanics as part of the order of things as ordained by their Lordships of the Admiralty. In the early thirties, however, when the R.A.F. was privileged (if that is the word) to provide all the servicing crews and a percentage of the pilots for what was then known as Fleet Air Arm, landing-on was more of an individual effort, and in view of the record-breaking striking-down methods in vogue at the time was (if I dare say it) more skilful.

In 1930, when I was one of those fortunates permitted to leave the comfort and peace of an R.A.F. Station for the hurly-burly and hammocks of a life on the heaving main (which, assuredly, was not the only thing to heave), H.M.S. *Courageous* staged the first British arrester-gear trials with a Fairey Flycatcher, then the standard Naval fighter. The pilot was a Lieut. G. L. Brinton, R.N., who lost his life the next year whilst training with the Schneider Trophy team, for which he was the only Naval pilot ever to be selected. The Flycatcher was equipped with a crude arrester hook and attachment, the hook appearing as if hammered from the solid by some ship's blacksmith who was not particularly good at his job. Although most of the many spectators were openly sceptical, the landings were successful, if a little hectic. As the hook was solid, the deck handling party had to dash out after each landing to haul the aircraft aft, with airscrew turning to act as emergency brake, until the cable could be kicked clear of the hook.

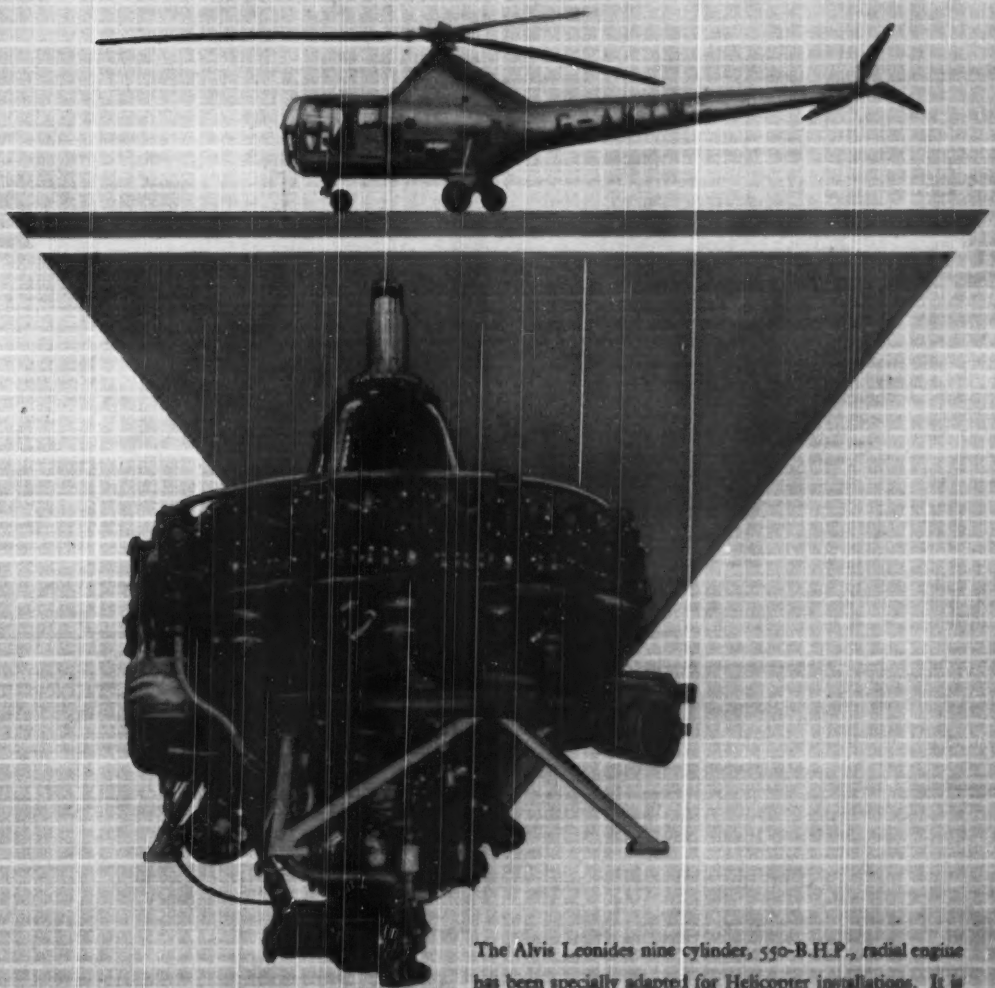
The crudeness of the arrangements probably blinded us to the possibilities of the system, but I think that both pilots and airmen were glad to continue with the less mechanical but more exciting real deck-*landing* method. Perhaps in the minds of the pilots was the thought that going over the side would result in a ridiculous arrester-wire suspension 'twixt wind and water, and a somewhat ignominious hauling to the deck from a precariously pendulus aircraft. This would compare unfavourably with normal "ditching," which certainly meant a wetting, but also resulted in a rapid pick-up by the attendant destroyer's boat's crew within minutes, and a skinful of rum "to keep the cold out" before returning to the carrier.

The fighter flights (each of six aircraft, and all Flycatchers) were hangared forward and so used the forward lift. Competition was keen between flights for the record in striking-down, which was, if memory serves, 4 min 20 sec for the striking-down and stowage, without benefit of folding wings, of six aircraft individually. This included the time taken for the six-down and five-up journeys of the lift. As the aircraft actually touched down just aft of the lift-well, to finish the landing run dead on the up-coming lift (theoretically, at least), passengers on the up journey always advisedly faced aft as near to the outboard edge of the lift as possible—and they often had to step lively to avoid decapitation or some lesser mutilation. The lift was alongside the "island," with the consequence that an aircraft swinging to starboard was certain to nose into it; providing it finished up clear of the lift-well, this embarrassed no one but the pilot.

The 'Catchers approached in close line-ahead, so that if one made a dud run and had to make another circuit, the next was in position to touch down. The Flycatcher was flapped, but was not encumbered with any refinements such as wheel brakes, and any tendency to over-run was usually prevented by the Naval deck-handling party, the largest members of which would seize the tailplane in large and sinewy hands and hang on. Many was the tailplane

ALVIS LEONIDES

the Power Plant of the Westland-Sikorsky S.51 Helicopter



The Alvis Leonides nine cylinder, 550-B.H.P., radial engine has been specially adapted for Helicopter installations. It is the most modern engine in its class, with several outstanding features, including totally enclosed pressure-lubricated valve-operating mechanism, an anti-icing fuel injection system and automatic mixture and boost controls, and a special cowling arrangement, with pressure baffles and fan

ALVIS

ALVIS LIMITED · COVENTRY · ENGLAND

British Airmanship

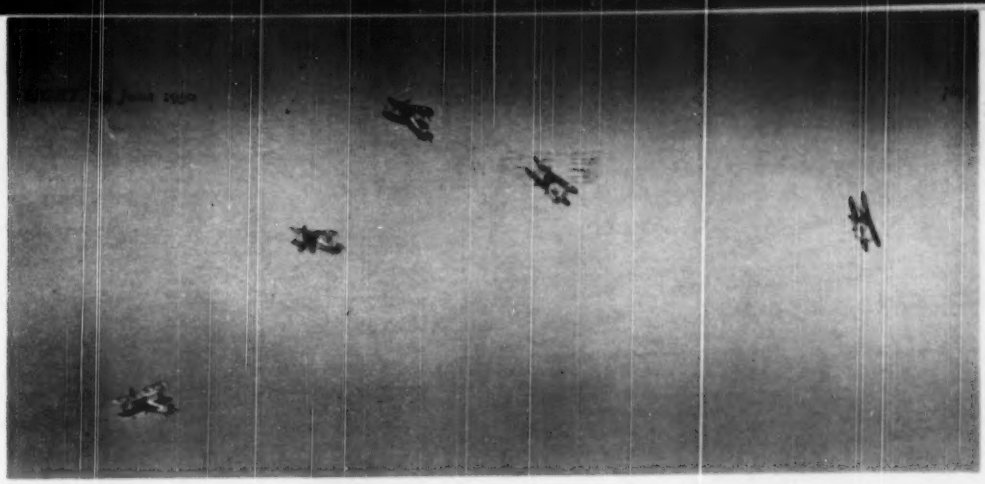
SOMETHING TO BE PROUD OF

The past 31 years have seen not only the development of British airlines from the first London-Paris service to a vast network covering nearly 70 countries, but also the steady maturing of something beyond machines and scientific progress. Throughout Britain and the world this has come to be known as British Airmanship and already it has earned a significance comparable with that which traditionally attaches to British Seamanship.

British Airmanship sums up the reputation for skill, enterprise and reliability which in just over a generation of air travel has become inseparably associated with British airmen — something, indeed, to be proud of.

FLY BRITISH

ISSUED BY BRITISH OVERSEAS AIRWAYS CORPORATION AND BRITISH EUROPEAN AIRWAYS



Fairey Flycatchers of the type which figures largely in S/L. Bunn's reminiscences, break formation with a "Prince of Wales feathers."

which had to be changed because of this exuberant but sometimes misguided devotion to duty.

Once on the lift, which had barely finished its ascent, the warning bell rang, and down it went again. The lift-well was protected by safety rails, which shot up from the deck as the lift began to drop. It was the duty of the fitter and rigger to "go down with their aircraft," and on one occasion my opposite number was a little tardy. As he sprinted for the lift his position coincided at one point with the rising safety wire, which he failed to clear; and he caught up with the lift—on his head and shoulder—some six feet down.

As we formed what was known as "slip flight," take-off was nearly as hazardous as landing-on. Slip flight used the lower flying-off deck, about 60 feet of tapering runway in the bows, upon which the forward upper hangar opened by means of huge doors like lock gates, opened and closed by the use of tackles (which the Navy pronounces "taykles") and elbow-grease. The leading two aircraft, the first usually the flight commander's, took up position in the centre of the deck just outside the hangar, nose to tail, and had special strops attached to a slip gear anchored to the deck. The remaining four aircraft stayed in the hangar, and all six ran up engines where they were. The noise and buffetting of the slipstreams of six airscrews attached to engines running full out in that confined space, closed at the after end by a fire screen, can better be imagined than described. The leading aircraft revved up on its slip-strop, the toggle was released by hand from the deck, and the aircraft shot forward, followed by the second slip aircraft. As the slip-gear did not always work first time, delay was possible, and recriminations both from cockpit and bridge followed. The four aircraft in the hangar quite simply taxied to the centre of the hangar and took off from there. None really attained flying speed before it reached the bows, so each dropped out of sight immediately it left the deck. Some, I believe, even "wet their wheels," but all invariably managed to make height and flying speed eventually. As aircraft were taking-off overhead from the flight deck proper at the same time, the whole scheme can only be categorized as apparently "dicey," but as no accidents actually occurred, it could not have been as perilous as it seemed.

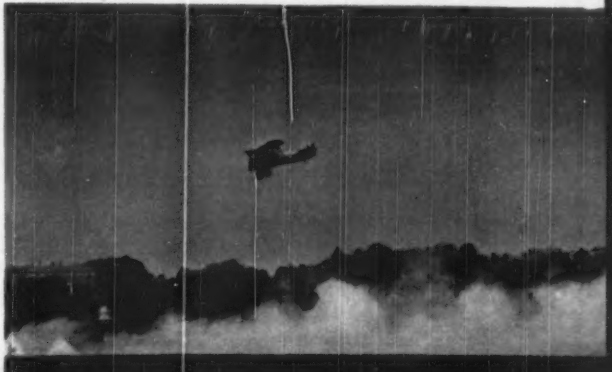
Unhampered as we were by such refining devices as accelerators, catapults, arrester cables, wheel brakes, folding wings, *et al*, flying in Fleet Air Arm in those "far-off, half-forgotten days" might appear to be almost ideal in its simplicity. However, even the most sanguine could not dilate upon the perfect co-operation between R.N. and R.A.F. Responsibilities might officially be divided, but this never encouraged the "press-ganged" R.A.F. to perform Naval evolutions in any but the most deliberately ham-handed manner. While it *might* not be deliberate, it certainly seemed diabolic that the Naval salvage party would always dump a salvaged aircraft upside down on the deck, when dismantling technique by the R.A.F. required it to be right side up. Again, the Navy was responsible for ditched aircraft, and the handling parties had a naïve belief that the 35 cwt cable lead-strop to the centre-section main hoisting strops was of sufficient strength to support a water-logged aircraft without the bother of transferring to the main hoist. The strop invariably and inevitably snapped just as the centre-section (which, by virtue of the weight of the engine, floated the length of the fuselage below water) broke surface, thus permitting the centre-section to seek its own level once more, and ensuring that the strop was now accessible only to a diving party. After trying to hoist the aircraft by the tail-skid and tailplane, each of which, in the event, was obviously not stressed for this purpose, the mutilated carcase would then be left derelict for ramming and sinking by the destroyer, a job which is not always as easy as it sounds.

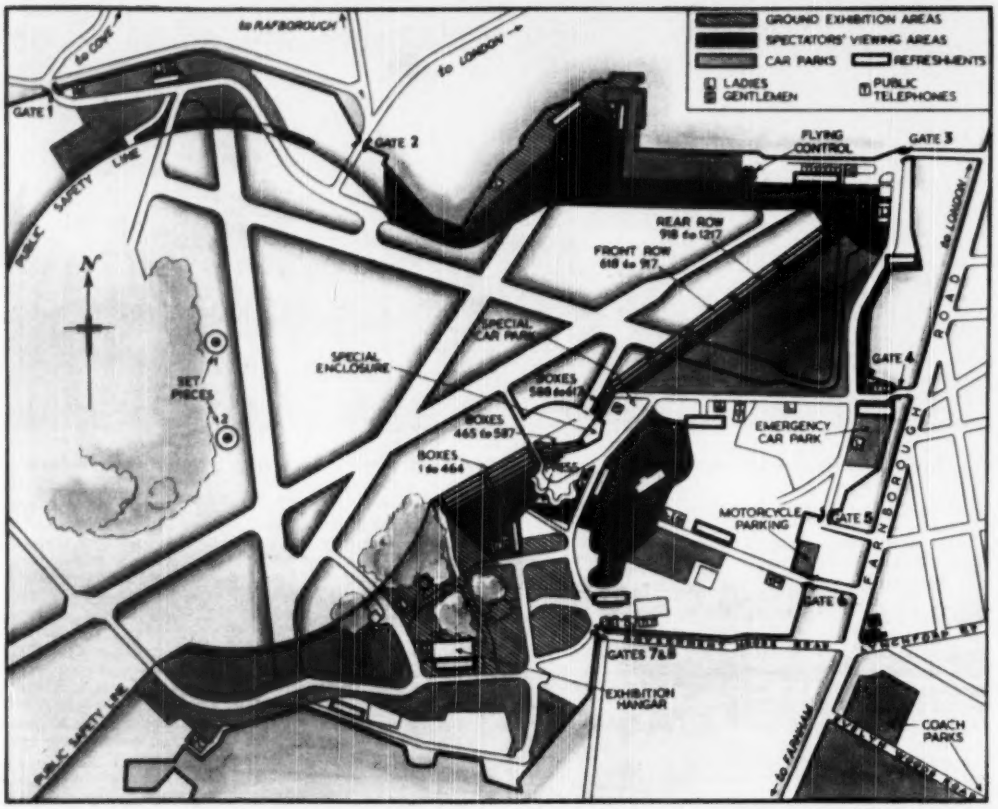
Naval routine, methods, accommodation (especially) and discipline did not go down at all well with the R.A.F., and this distaste was not tempered by the knowledge that one commission usually led to another, if you lasted long enough—"once Fleet Air Arm, always Fleet Air Arm." The Records Office apparently took the (to them) reasonable view that once an airman had received the initial inoculation and become inured by two-and-a-half years' association with the Navy, he was just the man to do another two-and-a-half years. The sole, somewhat doubtful, consolation was that a commission was equivalent to an overseas tour; but many an airman would have preferred three years "out in the blue" rather than one commission on it.

We were fortunate in having an R.A.F. flight commander, and still more fortunate in that he was F/L. A. M. ("Hoppy") Wray, M.C., D.F.C., A.F.C. (later Air Commodore), a fighter pilot whose logbook was like a poem to read.

On looking back in the light of events, I feel that the Royal Navy had no great cause to like us, and that feelings were mutual. Relief on both sides was probably equal when the unnatural affiliation was at last severed.

A Flycatcher during an exuberant low-level attack at one of the Hendon R.A.F. Displays in the early nineteen-thirties.





Arrangement of the public enclosures, traffic entrances and other facilities at Farnborough in relation to the airfield and runways

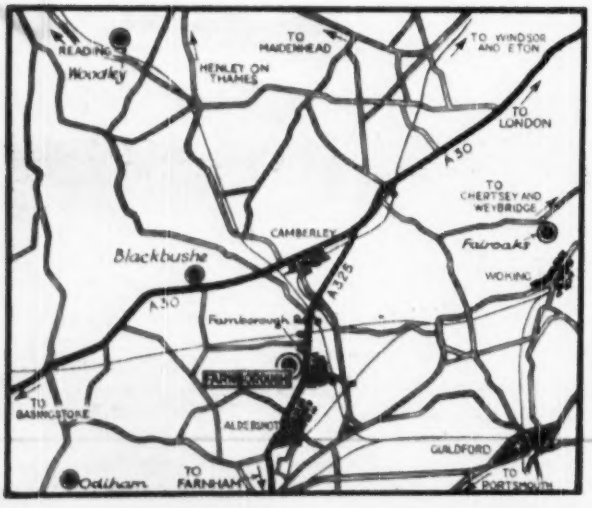
THE R.A.F. DISPLAY

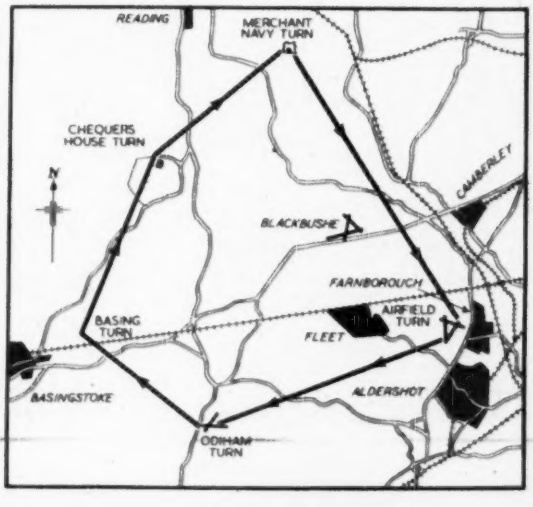
A Spectators' Guide to Next Week's Two Big Days : Details of Admission

Below, a sketch map of the Farnborough locality; right, the 36-mile course for the R.Aux.A.F. Cooper Trophy Race on the Friday.

FOR the benefit of intending visitors to the Royal Air Force Display, on Friday and Saturday of next week, we reproduce on this page three maps: one shows the enclosure arrangements in detail, the second illustrates approaches to Farnborough by road, and the third indicates the course, in relation to the surrounding countryside, over which the aircraft taking part in the Cooper Trophy Race will fly; this event, for R.Aux.A.F. pilots, will take place on the Friday over two laps of the circuit.

Their Majesties the King and Queen will watch the first day's display, while the Prime Minister will be guest of





AIRWORK
LIMITED
Charter Division

A World Service

Outcome of 21 years planned development—Airwork's Charter Division provides all-in, self-contained service, unrivalled for smoothness and dependability of operation—designed to appeal especially to all interested in long-term charter work.

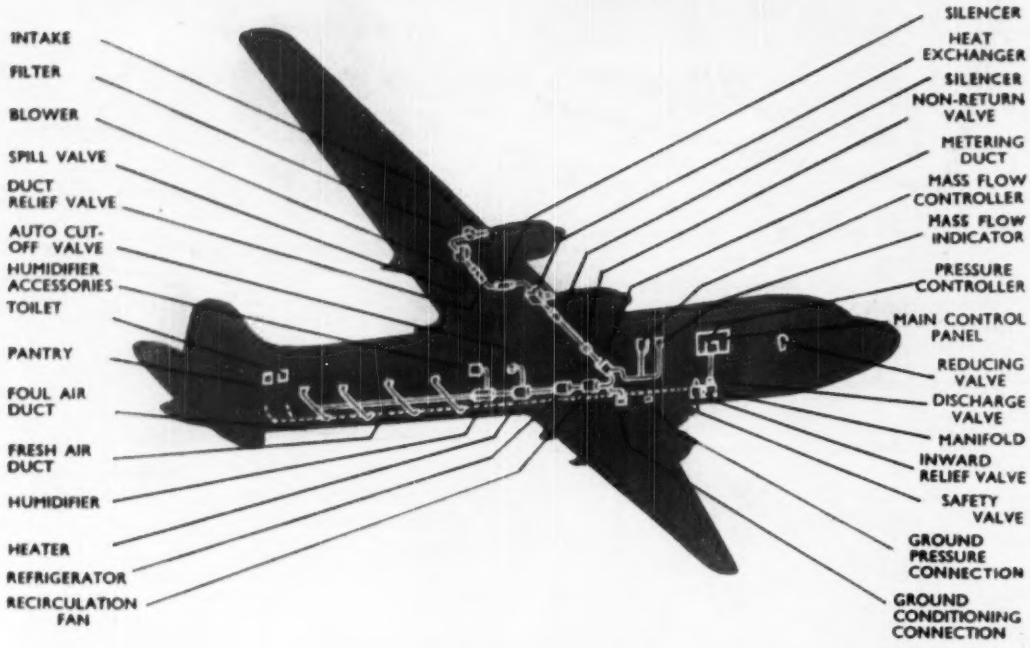
Typical Airwork contracts include: Operation of a leave service between the U.K. and the Middle East on behalf of the Sudan Government; maintenance and operation of fleets of aircraft on behalf of the Anglo-Iranian Oil Co. Ltd., Abadan; Iraq Petroleum Company Ltd., Haifa; and Shell Co. of Ecuador, Ltd., Shellmera; operation of "Holidays by Air" Charter Service for the Polytechnic Touring Association.

THE SERVICES OF AIRWORK

Air Transport Contracting • Contract Charter Flying • Servicing and Maintenance of Aircraft
Overhaul and Modification of Aircraft • Sale and Purchase of Aircraft • Operation and Management of Flying Schools and Clubs • Radio Sales and Service • Insurance

AIRWORK LIMITED 15 CHESTERFIELD STREET LONDON W.1 TEL GROSVENOR 4841

CABIN ATMOSPHERE CONTROL



The system of a typical air liner, fully equipped for Cabin Atmosphere control, is represented above.

By presetting a simple selector, cabin pressure can be controlled from take off so that the cabin climbs to a maximum of 8,000 feet during the time the aircraft climbs to its maximum operating altitude. The internal rate of change, also capable of selection, is normally equal to a rate of climb of 300 feet per minute. Lesser cabin heights can be established at will for intermediate cruising altitudes, and cabin height can be varied in flight. Once a given cabin altitude is established it is maintained automatically irrespective of aircraft manoeuvre. An automatic device prevents the maximum permitted differential pressure being exceeded.

Flow control units maintain a constant air supply irrespective of variations in ambient pressure, or engine speed. Temperature and humidity control units ensure comfortable and safe cabin conditioning.

Complete safety, under all conditions, is assured by the incorporation of such items as safety valves, duct relief valves, non-return valves, etc.

NORMALAIR
LTD.

YEOVIL ENGLAND

DESIGNERS AND MANUFACTURERS OF AIR CONTROL EQUIPMENT

THE R.A.F. DISPLAY . . .

honour on the second day.

Admission to the ordinary public enclosures is 3s, and to the special enclosure (seen on the map to the rear of boxes 1 to 464) it is 10s, children being admitted at half-price in each case. Six-seat boxes (open) along the fronts of the enclosures are priced as follows: Nos. 1 to 617, £6 (single seats available at £1); 618 to 917, £4 10s (15s); 918 to 1217, £3 15s (12s 6d). Car-park admission (by label) is 10s; coach labels are £1. Motor cycles will be admitted at 2s 6d (payable only at the gates) and pedal cycles at 6d.

Admission tickets are obtainable in advance as, of course, are seat bookings. The controlling ticket agents are Alfred Hays, Ltd., 26, Old Bond Street, London, W.1 (Regent 4040), and tickets may be obtained from them or from the usual ticket agencies in any part of the country. Applicants should remember to specify clearly whether they require their tickets for the Friday or the Saturday.

The Display begins at 10.30 a.m. on each of the two days, the main events taking place in the afternoons. The ground exhibitions and aircraft parks are open from 9 a.m. to 7 p.m. Holders of car labels are advised to arrive by 12.30 p.m.

Also shown on our map is the ground-exhibition area. This "static show," some details of which appeared in *Flight* last week (p. 747), will be on an ambitious scale.

Spectators who arrive early enough to have any choice in the matter of the enclosures they occupy should remember that, if the day is bright, watching the display from the northern side of the airfield will involve staring into the sun.

It is understood that very complete catering arrangements have been made; refreshment marquees are indicated on our map.

Visitors by road will find the approaches signposted, and controlled by the police, and the use of car-park labels should facilitate movement.

British Railways (Southern Area) will be running a number of extra trains from Waterloo to Aldershot, Farnborough and North Camp stations, and there will be connecting bus services where necessary. Cheap fares will also be available from certain stations: details are obtainable from local railway enquiry offices.

Regulations for visitors by air arriving at neighbouring airfields will form the subject of a Notam which, we understand, is being issued by the M.C.A.

A full dress-rehearsal of the Display, to be held on Wednesday of next week, will be attended by organized parties of school-children.

CORRESPONDENCE

The Editor of "Flight" does not hold himself responsible for the views expressed by correspondents in these columns. The names and addresses of the writers, not necessarily for publication, must in all cases accompany letters.

Boeing and Douglas Pioneering

HAVING read with very great interest the first part of Sir Richard Fairey's Wilbur Wright lecture, "Some Aspects of Expenditure on Aviation" (June 1st issue, pages 673-675), I hope Sir Richard will forgive me if I take the liberty of pointing out two small errors in his references (para. 13, page 674) to the classical examples of the Boeing 247 and the Douglas DC-2 in the field of all-metal monoplane transports, followed by the DC-3 in 1935 and the Short Empire Boat a year later.

The Boeing 247 made its appearance in 1932—not 1933. By the end of 1933 some 50 machines of this type were in service with three leading American companies—United, P.C.A. and Western Air Express. Actually the prototype 247 was fitted originally with a non-retractable undercarriage. Several months of testing went by before a successful partly retractable undercarriage unit was fitted and approved by C.A.A. for the greatly improved Boeing, which, in full-scale production, was known as the Model 247D.

Regarding the Douglas DC-2, whilst I do not dispute that the first production model appeared in 1934, in actual fact the first 14 DC-2s built all went to T.W.A., since it was that company's far-sighted president, Mr. Jack Frye (a pilot of many years' commercial experience) who, in company with Donald Douglas and Arthur E. Raymond (Douglas' chief engineer and one of the best brains in the business) were the principal planners and sponsors of the DC-2.

However, it was the one and only prototype DC-1 which had been test flying for almost a year beforehand, having made its historic first flight on July 1st, 1933, in the hands of Carl Cover (then vice-president of the Douglas company). The same prototype was later tested for five months in the hands of T.W.A.'s senior pilots; also, Frye and Rickenbacker flew it on a number of long-distance endurance tests.

Prestwick, Ayrshire. DENNIS M. POWELL.

Nautical Digression

THOUGH realizing perfectly well that the idea has a good, solid scientific purpose, I was delighted to read that a 62-year-old paddle steamer is to be powered with not just one, but four, Rolls-Royce Derwent 5 turbojets and sent out into the Gareloch, Firth of Clyde, to run trials. (It seems that the sea-boffins investigating hull-resistance are apt to have their slide-rules upset by the presence of a whirling screw, and that merely to tow a hull is equally unsatisfying.)

Until I read on, and discovered that the four mighty power-units are to be anchored on deck, and *blow* the venerable *Lucy Ashton* along, I conjured up glorious visions of the efflux being directed on to the paddles (these, it appears, will be dispensed with, unless they have already been completely eaten away by teredo-worms).

But to be serious: though it is emphasized that these experiments have no direct bearing on jet propulsion for marine craft, this subject is an interesting one. A lot of work has, we know, already been done, though I am aware of only one case in which direct jet propulsion has been tried—by the late Sir Malcolm Campbell, who experimented with a Goblin. I believe his attempts were not altogether successful, the boat being unstable—perhaps owing to the high thrust-line and to the fact that the thrust was being produced in one element and the steering (by a normal under-water rudder) in another.

In this connection it occurs to me that the ideal power unit for a water-speed record attempt would be a powerful turbo-prop such as the Proteus, driving forward to a gear box coupled to an orthodox marine propeller-shaft; the tailpipe would discharge over the stern, thus adding to the thrust.

I trust the Editor will forgive me for trespassing on his space with a subject that really has very little direct bearing on aviation. GRANNY KNOT.

Portsmouth, Hants.

Tearing Off a Strip

THE expression "tearing off a strip" goes back to the origin of the Royal Air Force in No. 1 Balloon Squadron of the Royal Engineers. Pulling the rip cord on a gas bag (which had the effect of tearing off a strip of fabric) was the quickest way of deflating it. The phrase soon came to be used to describe the deflated feeling one got when interviewed by the C.O.

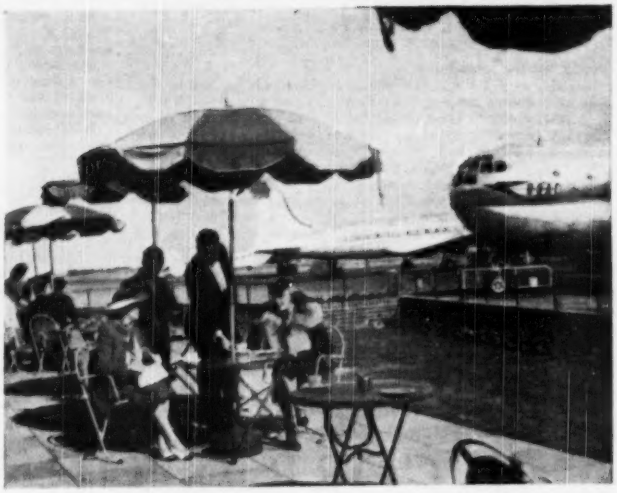
Wembley, Middlesex. C. L. WILLS, ex-R.F.C.

[Of all the explanations advanced since the query was originally posed in these columns, this is unquestionably the most convincing.—ED.]

FORTHCOMING EVENTS

July	1.	De Havilland Technical School: Parents' Day, Panshanger Airfield.
July	1-3.	R.Ae.C.: Members' Deauville Rally.
July	2.	Northern Heights Model Flying Club: Gala Day, Langley Airfield.
July	2-9.	Aero Club of Italy: International Air Week.
July	3-16.	Aero Club of Swedon: International Gliding Contest, Orebro.
July	7-8.	Royal Air Force Display, Farnborough.
July	8.	Wiltshire Flying Club: "At Home."
July	8-10.	R.Ae.C.: Members' La Baule Rally.
July	10-15.	Fourth World Power Conference, London, to include papers on gas turbines, by M. Roy; Dr. D. M. Smith; P. Owne, with Dr. S. G. Hooker; W. Karrer; L. N. Rowley with B. G. A. Skrotski; and J. S. Alford.
July	14-16.	Cognac International Rally.
July	15.	Redhill Flying Club: "At Home."
July	16.	Auster Rally, Rearsby Aerodrome.
July	18.	Aero Golfing Society: Second Summer Meeting, Beacon-field.
July	22.	Yorkshire Aeroplane Club: International S.B.A.C. and Air League Cup Races, Sherburn-in-Elmet, Leeds.
July	23-24.	R.Ae.C. Members' Nice Rally.
July	23-23.	Aero Club de Touraine: Tours Rally.

CIVIL AVIATION NEWS



AIRWAYS CAFÉ: The pleasant "garden-party" atmosphere of London Airport's restaurant-terrace can be enjoyed while waiting for arriving friends.

BRABAZON FORECAST

AS reported elsewhere in this issue, the Brabazon I prototype recently stepped into the limelight after the first stage of its development trials, which, from the publicity aspect, have been conducted with considerable modesty. For the first time, during its demonstration at London Airport on June 15th and 16th, it landed at an airfield other than Filton. The true measure of this achievement is perhaps best explained by the confident words of its pilot, Bill Pegg: "We now treat the Brab just like any other airliner. I was especially pleased with the way in which the aircraft taxied and manœuvred round the perimeter track."

Undoubtedly the performance at London Airport did much to convince the sceptics that an aircraft of such proportions requires no better runways than those already provided at first-class international airports.

A general idea of the future Brab interiors could be obtained from the temporarily furnished rear cabin of the prototype, but a better indication of the extreme luxury which passengers will enjoy is given by an artist's conception of a provisional interior layout envisaged by the Bristol Company. Immediately behind the flight deck is the first-class passengers' accommodation. In each cabin there are seats for six persons, readily convertible into four sleeping berths. The remaining two passengers in each cabin literally go upstairs to bed. A short staircase leads past the main kitchen and pantry to the centre saloon, which has accommodation for 38 passengers. Seats are spacious, comfortable and fitted with adjustable head-rests. Toilets are located beneath the centre saloon, fore and aft of the wing structure. Another staircase leads from the centre lounge to a cocktail bar which will also act as the passengers' point of entry. Behind the cocktail bar is the after saloon with 23 seats facing rearwards. Freight and luggage space is provided beneath the passenger compartments.

Although the Mark II, fitted with Proteus turboprops, is the version which it is intended to use on the North Atlantic route it is conceivable that the Brabazon I may eventually recover a part of its initial cost by some commercial application. The Mark I aircraft meets fully the exacting requirements of maintaining a non-stop service between London and New York (a stage distance of 3,450 miles) but this version reaches a maximum performance (cruising at 50 per cent power) of 250 m.p.h. at 25,000ft. With turboprops the Mark II will also carry a load of 100 passengers, but cruising speed is increased to 350 m.p.h. at 35,000ft. The manufacturers envisage a schedule of the following order, even with the use of only one aircraft, and assuming a westerly wind of 70 m.p.h. over the whole route. Leaving London Airport on a Sunday at midnight, 11 crossings could be made between then and the following Saturday morning. With three aircraft allotted to the route (two in use and one in reserve) seven services per week could be maintained in each direction.

Although no accurate assessment of operating costs for the three Brabazon IIs is possible at the present time, preliminary figures indicate that fares should be very economical.

FUEL TAX TALKS

MEETING in London on June 19th, the major representative bodies of British civil aviation decided to seek discussion of the new fuel tax with the Chancellor of the Exchequer, and Treasury and Customs officials, in the hope that a satisfactory solution might be found before the Report stage of the Finance Bill is reached in the House of Commons.

While welcoming the suggestion made by a Government spokesman during the Committee stage of the debate on this Bill to consider means of relieving flying clubs of the burden of the extra tax, the meeting felt that such consideration should be extended to all users of aviation spirit.

The view was expressed that the imposition of 4d a gallon on aviation spirit in 1928 was made through an oversight in classification. At that time the annual consumption of this fuel was barely 500,000 gallons, but to-day a duty of 1s 6d per gallon has to be paid on 15 million gallons, 65 per cent of which is used in the bench-testing of engines and flight-testing of aircraft by manufacturers and operators. The extra tax was said by the secretary of the British Air Charter Association, Mr. H. R. Gillman, to have resulted in increases of at least 10 per cent in the operating costs of charter companies.

PRINCES FOR BRAZIL

IT is always encouraging to see a steady flow of orders for British aircraft, and one which is currently achieving success in this respect is the Percival Prince. The latest order to be announced for this versatile 10 to 12-seat feederliner is one from a company known as Aeronorte, which is shortly to operate a fleet of Princes on internal services in Brazil. The first aircraft will leave at the end of this month to fly via the North Atlantic route through the U.S. to Rio de Janeiro.

It will be recalled that two others recently flew by the same route to Venezuela for work among the oilfields of the Shell Group in that country, and a further "Shell" Prince, piloted by G/C. D. R. S. Bader, has just been delivered to Borneo.

SAFER OVER SEA

SOME interesting accident statistics compiled by the C.A.B. and published in connection with A.O.A.'s celebration of their 20,000th Atlantic crossing (mentioned in *Flight* last week) indicate that flying tends to be safer on over-water routes. In more than 61,000 transatlantic crossings made by the three regular U.S. operators, P.A.W.A., A.O.A. and T.W.A. during the last twelve years, there have been only five accidents in peacetime and two during the war.

Up to June 8th of this year P.A.W.A., which commenced transatlantic services in May, 1938, had made 22,563 crossings, and T.W.A., whose first flight on this route was in February, 1942, had recorded 18,474. By comparison, up to May 31st B.O.A.C. aircraft had crossed 6,759 times without a single fatal accident. The five peacetime accidents involving U.S. airlines cost 97 lives while, in the same 12-year period, the 16 companies flying regular internal services sustained 54 accidents with a loss of 910 lives.

I.C.A.O.'s PETTY CASH

THE Fourth Assembly of I.C.A.O., which has been meeting in the organization's headquarters in Montreal, completed its deliberations on June 21st, after approving a budget for 1951 of some $3,000,000 (£1,071,400). This budget calls for

At the Annual Dinner

At the Annual Dinner of Desoutters Little Horses one Little Horse proposing the toast of the Guest of Honour said:

Man without horsepower is but an ass. Where would MAN be without horses? Grubbing about with flint and lumps of iron. And indeed many of them would still be doing so had it not been for the genius of our Managing Director who has taken the operation of drills, screwdrivers and such small tools out of the clumsy hooves of man and placed it in the fast, skilled hands of horses.

I give you, Horses, the toast of the evening: that great genius, that amazing man who not only put us to work in his small power tools but wrote this speech about it too: DESOUTTER.

(Loud and prolonged neighs)

Desoutter

POWER TOOLS INCREASE PRODUCTION

DESOUTTER BROS. LTD., THE HYDE, HENDON, LONDON, N.W.9. TELEPHONE: COLINDALE 6346 (5 lines). TELEGRAMS: DESPNUCO, HYDE, LONDON

GIG213

"Service to Aviation"

THE WEYBRIDGE 'S' COVERING

We confidently recommend the Weybridge 'S' covering as the finest possible finish available to-day. The Weybridge 'S' covering "goes on going on" in spite of heavy usage and bad flying conditions. For day-after-day "hang-the-weather" flying there is only one answer—Weybridge 'S' covering. Illustration shows build-up of Weybridge 'S' finish. Moisture-sealed, with robust abrasion-resisting outer covering.

"SERVICE TO AVIATION"

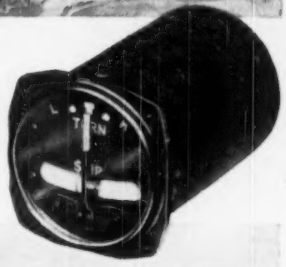
THE AIRSCREW COMPANY & JICWOOD LIMITED, *manufacturers of* Fixed-pitch Propellers, Weybridge Blades. Engine Test Fans. Wind Tunnel Blades and Fans and Wind Tunnels. Smoke Tunnels. Recirculating Fans for pressurised cabins. Axial-flow and Centrifugal Fans. Sheet-metal work for the Aircraft Industry. Jicwood Insulated Transit Containers. Insulated and Stressed-skin materials for Aircraft. Weyroc Man-made Timber and Block Flooring. Jicwood Bus Roof.

THE
AIRSCREW
CO., & JICWOOD LTD., WEYBRIDGE, SURREY

Telephone: Weybridge 1600 — Telegrams: Airscrew, Weybridge

The first and only Electrical Turn and Slip Indicator approved for service with the R.A.F.

"Proving your indicators are in every way satisfactory on the Armstrong-Whitworth Apollo."



PULLIN *Precision*
ELECTRICAL TURN & SLIP INDICATORS

1000 hours between Overhauls

For full details write direct to the Sole Manufacturers

R. B. PULLIN & CO. LTD.
PHOENIX WORKS, GREAT WEST RD., BRENTFORD, MIDDX.
Telephones: EALing 0011/3 & 3661/3. Telegrams: Pullinco, Wesphone, London.

16313

CIVIL AVIATION NEWS . . .

£928,500 to be obtained by assessments from I.C.A.O. member nations, £36,428 by appropriation from its capital fund and £28,571 from the general fund reserve. A further sum of £67,137 will be obtained by income from casual revenue. Operational expenses for 1951 will be distributed among contracting states, on the basis of a newly sanctioned scale.

The choice of Montreal as I.C.A.O.'s permanent headquarters was the subject of some discussion in the later stages of the Assembly. On June 17th, a motion that the headquarters be moved from Montreal, because soft-currency countries could not afford to maintain delegations in the dollar area, was defeated only because the necessary two-thirds majority was not secured. Eighteen delegates voted for the proposal and only twelve against it.

It was also decided that the next full-scale session should be held in 1953; interim assemblies, however, will meet in the intermediate years. (A further report of the Fourth Assembly's activities will appear in a forthcoming issue.)

RECORDING CONTROL-CONVERSATIONS

A MULTI-CHANNEL magnetic-tape recorder designed to give continuous recording of conversations between pilots and airport control officers is announced by Thermionic Products, Ltd., Morris House, Jermyn Street, London, S.W.1. The equipment, it is stated, is capable of recording simultaneously 14 different conversations on a single magnetic tape less than ¼in in width and, since it is fully automatic, eight hours' continuous recording is possible without attention.

The complete apparatus is mounted in three 7½-ft relay racks. The first rack includes two tape-transport mechanisms and the master-recorder control panel; the second rack contains a third tape-transport mechanism and the complete electronic unit for the entire recorder. In general, only two recorders on the first rack operate, but the mechanism on the second rack takes over if any fault develops in the first two units, or if these units are not reloaded after a run.

On the third rack is a tape-transport mechanism for playback purposes, with a speaker located at the top of the rack. The power supply for the playback unit is identical to that for the recorders and in an emergency can be used to drive them.

Each reel contains about 4,800ft of tape, which can be used repeatedly after removal of previous recordings by means of the permanent-magnet "erase head" which is employed.

The number of recording heads supplied with the equipment depends upon the number of independent recording channels specified; each head produces a magnetic sound track 0.030in in width. A single reel of tape gives a recording period of four hours, so that, for eight hours' continuous recording, a switch-over mechanism is used. A feeler arm riding on the surface of the tape on the supply reel closes a switch which starts the second tape-drive mechanism approximately five minutes before the first reel is exhausted. Thus, recordings are made by both units during a five-minute overlap to ensure absolute continuity.

BREVITIES

THE Minister of Civil Aviation, Lord Pakenham, has appointed Mr. K. J. Willoughby to be his assistant private secretary. Other M.C.A. appointments which have been announced are those of Mr. G. H. Baer to be private secretary to the Parliamentary Secretary, Mr. Frank Beswick, M.P., and Mr. W. A. Penn to act in the same capacity for Sir Arnold Overton, the Permanent Secretary.

* * *

P.A.W.A. is planning to introduce Stratocruisers on its New York-Buenos Aires route on July 5th. When approval has been received from the governments concerned the service will be operated on a twice-weekly basis in addition to the existing service.

* * *

It has now been announced that the de Havilland Dove has been granted its American C. of A. This aircraft has already evoked considerable interest in the executive-aircraft market, and an intensive sales campaign can be expected. The price (approximately $60,000) compares favourably with that of the Dove's nearest American counterpart, the Beech Model 18.

* * *

Addressing the Aviation Writers' Association in Montreal recently, Mr. G. R. McGregor, president of T.C.A., said that he would be surprised if the company's deficit ($4,000,000 in 1949) were not substantially reduced this year. T.C.A.'s passenger traffic was stated to have increased by 100 per cent from 1947 to 1949.

* * *

From July 1st, to August 31st, B.E.A. will operate an experimental service linking Perth and Renfrew and connecting at the latter point with services to the Western Isles, Dublin and London. Mr. Peter Masefield, chief executive of B.E.A., has said that although this service will not be profitable, the Corporation has agreed to provide it because charter companies refused to do so.

* * *

Tasman Empire Airways, Ltd., celebrates its tenth birthday this year. It was on April 30th, 1940, that the Empire class flying-boat, *R.M.A. Aotearoa*, made the first regular passenger carrying flight from Auckland to Sydney. This 1,342-mile route is now being flown with Solents which have made possible a reduction in flight time from 9½ hr in 1940 to less than 6½ hr for present services.

* * *

Speaking recently in New York, Mr. C. R. Smith, president of American Airlines, made very clear the attitude of his company towards jet airliners. He considered that it would be as long as five years before jet aircraft would fly on scheduled services. "Present high operating costs of both pure jet and turboprop versions," he said, "will involve fare increases. American Airlines have no present intention of purchasing aircraft of either type."

▲ 21

On June 15th, a B.O.A.C. Stratocruiser landed at Shannon Airport with what is believed to be the largest number of adult passengers (80) ever to cross the Atlantic in a landplane. The aircraft had been specially chartered to carry two American youth groups to Britain.

* * *

It is understood that proposals have been made to convert Air Ceylon into a national air corporation which would take over all activities of the company. Details are now being finalized; it is possible that the conversion will be completed before the end of the year.

* * *

The U.S. National Safety Council has stated that 1949 was one of the best years in U.S. airline history from the safety standpoint: some 35 airlines accumulated a total of nearly 6,000 million passenger-miles without fatality. T.W.A., whose network serves 70 cities in 14 countries, contributed 3,441 million to this total.

* * *

Owing to a shortage of shipping space the War Office has asked the M.C.A. to place tenders for charter aircraft to carry troops from the Middle East to the United Kingdom between now and September. Apart from a trooping contract for West Africa, no other War Office charters are being operated at the present time.

* * *

President Truman accepted an invitation to dedicate the Friendship International Airport during the opening ceremony conducted on June 24th. An outstanding feature in the planning of this airport, which is four times the size of La Guardia Field, is its "zoning law" which prohibits the construction of any buildings or power lines within four miles of the runways.

* * *

Compiled primarily for the benefit of the non-scheduled charter operators, a new edition of the Shell Petroleum Company's fuel availability lists has now been published. It incorporates a summary of duties and taxes payable at airfields throughout the world on gasoline and engine oils; the lists, now in folder form, are obtainable on request to either the Shell Petroleum Company, Ltd., St. Helen's Court, London, E.C.3, or Shell-Mex and B.P., Ltd., Shell-Mex House, London, W.2.

* * *

In its first year of operation, the Egyptian Aircraft Engineering Company (in which B.O.A.C. is a shareholder) overhauled 40 engines and completed eight C.s of A. in addition to other overhaul and repair work. In conjunction with International Aeradio, Ltd., the fully equipped radio overhaul and test shops give 24-hour service at Egypt's three major airports. The company's clients, it is stated, now include the Royal Egyptian Air Force and many of the larger Middle East operators. During a recent visit to Cairo, Sir

CIVIL AVIATION NEWS . . .

Victor Tait, B.O.A.C.'s operations director, expressed his approval of the technical facilities and the standard of workmanship.

* * *

Referring to the possibility of helicopter services within the Isle of Man and from points on the mainland to Douglas and Ramsey, Mr. T. C. Cowin, chairman of the Isle of Man Airports Board, said that the Board had recently taken up the question with B.E.A. and developments were being awaited.

* * *

The I.A.T.A. Clearing House in London reports an increase of more than two million dollars in traffic transactions during April as compared with the figure for the corresponding month of last year; the total turnover in April was $13,787,000. During the first four months of this year the Clearing House has handled $50,083,000 worth of transactions as compared with the $46,370,000 for the corresponding period of 1949.

* * *

To inaugurate an interline agreement between B.E.A. and Lancashire Aircraft Corporation, Ltd. (by which passengers can now book direct from Newcastle, Leeds, Bradford, Manchester and Blackpool to all parts of the Continent *via* Northolt), civic dignitaries from the cities concerned took part in a flight to Geneva on Tuesday, June 20th. On arrival, they were met at the airport by the British Air Attaché and were subsequently received by the Lord Mayor of Geneva.

CLUB AND GLIDING NEWS

MENTION has previously been made in these columns of the high degree of local interest in aviation which exists at Cheltenham and Gloucester. It now appears that this enthusiasm has spurred on the clubs and commercial concerns using Staverton airfield to co-operate in establishing what is to be known as the Gloucester Aviation Centre. The immediate intentions are to provide an aviation information bureau and some measure of comfort for visitors to Staverton. It is hoped eventually to arrange and maintain an airport terminal building which will house a briefing room, radio room, meteorological office and other facilities essential to passenger handling.

The Aviation Centre has two distinct types of membership—individual and commercial; benefits of the former include the right to flying-instruction facilities and the hire of aircraft for pleasure purposes, together with participation in the Centre's social activities. Commercial membership is available to clubs, firms and societies in the aeronautical field. The Centre itself is being sponsored and operated by Club Aviation (Cheltenham), Ltd., who also operate Cheltenham Aero Club.

* * *

SOME knowledge of intruder tactics was apparently needed by pilots of aircraft taking part in the Blackpool and Fylde Aero Club "At Home," which was held at Squire's Gate on Saturday, June 10th. Only one aircraft, flown by Dr. Parry, of the Lancashire Aero Club, succeeded in penetrating the Blackpool defences, and his achievement was duly recognized by the presentation of a cup. Dr. Parry was also fortunate enough to win the trophy donated by the A.B.A.C. for the arrival competition. With warlike activities completed, the large party of visitors (who had arrived in Austers, Tigers, Geminis and even Ansons) were entertained to tea; this was followed by the presentation of awards, and, in the evening, by a dance organized for the benefit of those remaining overnight.

* * *

THE interest of the gliding fraternity is now being focussed on the forthcoming International Contests to be held at Orebro, Sweden, from July 3rd to 16th, and there is naturally some speculation as to the possibilities of new records being established. A summary of the main classes of existing F.A.I. records reveals an unfortunate lack of British names—a situation which, it is hoped, will be remedied before the contests are concluded. F/L. Mallett has already reached Sweden, and the remainder of the British team (captained, as in 1948, by Mrs. Ann Douglas) was due to leave Tilbury yesterday.

FLERS RALLY

GREAT BRITAIN was particularly well represented at the third international rally organized by the Aero Club de Basse-Normandie "Henry Goussin," held at Flers de l'Orne on Saturday, June 17th. No fewer than 13 of the participating aircraft had crossed the Channel to take part in what has proved, since its inception in 1948, to be a very popular annual event.

Among the British party was the veteran enthusiast, Dr. A. P. Thurston, M.B.E., D.Sc., M.I.Mech.E., F.R.Ae.S., F.C.I.P.A., who is a regular participant in this gathering. Most of the French entries came from neighbouring clubs in Normandy and the Paris area.

A Norécrin again achieved the distinction of winning the Chamber of Commerce Cup; it was flown by M. André Rose, of Alençon, who gained 1,520 points. He was followed closely by M. Urbain Faure—a notable figure in French aviation circles—who was flying a Bücker and gained 1,504 points. He was awarded the Ville de Flers Cup. Third and fourth places both went to British contestants, Mr. J. V. Heriz-Smith (Auster, 1,500 points) and Mr. J. Houlder (Gemini, 1,424 points).

SOUTH-COAST RACE DETAILS

THE announcement of the new international handicap race which, as mentioned in *Flight* last week, is to be flown along the South Coast in the autumn, is already provoking considerable interest. Staged to celebrate the Battle of Britain, and sponsored by the *Daily Express*, the event will take place on September 16th. The R.Ae.C. has already issued the relevant regulations, which state that the race is open to any type of aircraft of any nationality, provided that its maximum speed at sea level is not less than 100 miles per hour.

The course, to be flown at under 1,000ft, runs from Hurn Airport (Bournemouth), eastwards along the coastline, round the North Foreland, and so to Herne Bay, in Thanet. As the aircraft will pass not more than 500 yds to seaward of the turning-points, many of which are the pierheads of holiday resorts, many thousands should have an excellent view from a 185-mile "grandstand."

Competing aircraft will, as is usual in a race of this type, be handicapped according to estimated performance at full throttle. There is an entry fee of £10, payable to the R.Ae.C. not later than August 19th. The attractive prizes (totalling £2,350) are expected to tempt a large number of entrants. The sponsors are devoting all proceeds to the R.A.F. Benevolent Fund.

BENELUX AIR TOUR

THE second Benelux Air Tour, organized jointly by the Royal Aero Clubs of Belgium and Holland and the Aero Club of the Grand Duchy of Luxembourg, took place from June 15th to 18th. The event was truly international in character, in that the total of 64 aircraft (containing 147 air tourists) included 23 from Holland, 18 from England, eight each from Belgium and Luxembourg, three each from France and Italy, and one from Switzerland. The English party included a cheerful contingent of 14 members of the Newcastle Aero Club in six aircraft. Although the majority of the visiting aircraft were small single-engined types, there were several twins, including a smart Piaggio Amphibian flown by two Italian ladies—the Marchesa C. Negrone and Signore J. Novaro.

On arrival at Hilversum for the start of the rally on June 15th, the guests were presented with gifts of cheese and miniature bottles of spirits, maps, and books of tickets covering all meals and accommodation, and including a number of very popular spare tickets marked "aperitif" or "café ou bière."

An official reception was held at the magnificent Hilversum Town Hall by the Burgomaster and M. C. Kolff, President of the Royal Aero Club of Holland. The general theme of the speeches was on the need for European unity, and the value of private aircraft in overcoming frontiers.

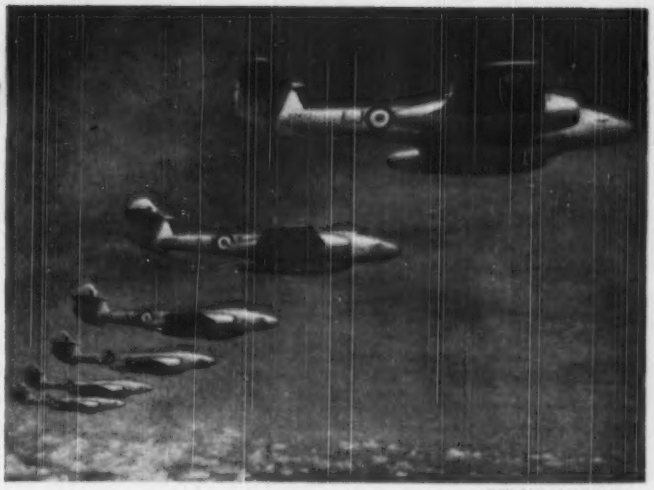
Next morning, June 16th, the visitors flew to Beek airfield (near Maastricht) for an open-air lunch, and here they were received by the Governor of the Limburg Province. After lunch, the party took-off for Sandweiler airfield (near Luxembourg). On this leg of the course the weather deteriorated; low cloud settled on the 2,000-ft peaks of the Ardennes country, and a thunderstorm greeted arrivals at the airfield. Some half a dozen aircraft failed to get through and made precautionary landings elsewhere, but by the evening all were accounted for.

At Sandweiler the party was received by M. J. Beck, President of the Luxembourg Aero Club, with considerable champagne hospitality. The next day the party flew in perfect weather to Grimbergen airfield (Brussels) for lunch, and a visit to the Brussels Exhibition. Here the members were received by M. Colpaert, Secretary-General of the Aeronautical Committee, and later, at a banquet, by M. Pholien, President of the Royal Aero Club of Belgium.

On Sunday morning, June 18th, the party was taken over the historic 14th-Century Brussels Town Hall and shown the famous tapestries and art treasures. Afterwards, a farewell lunch was held at La Maison des Ailes and a special bronze medal, which had been struck in honour of the occasion, was presented to all the rally participants.

SERVICE AVIATION

Royal Air Force and Naval Aviation News and Announcements



" Flight " photograph.

ON NEW MOUNTS: No. 600 (City of London) Squadron, R.Aux.A.F., flying Meteor 4s (with which they were re-equipped two months ago) from summer camp at Thorney. All "600's" pilots have now converted to their new aircraft and four have practised night flying.

New C.O. for No. 615

SPEAKING at the squadron's guest night, held at Tangmere during summer camp, the present commanding officer, S/L. Peter Devitt, announced with much regret that family affairs would necessitate his relinquishing command of No. 615 Squadron at the end of this year. He would then be handing over to S/L. Neville Duke, Hawker's well-known test pilot.

Sir Basil Embry, A.O.C.-in-C. Fighter Command, who was the guest of honour, thanked No. 615 for the work done in the past year, the standard of which was higher than he had thought it possible for Auxiliaries to attain. To get the whole fighter force to the highest pitch of efficiency in the shortest possible time was, he said, a matter of great urgency.

No. 615 will lead the fighter fly-past at the R.A.F. Display. At present they have Spitfires, but are due to receive Meteor 4s soon.

R.A.F.A. Conference

UNDER the chairmanship of Air Marshal Sir Richard Peck, over 1,000 delegates and members attended the very successful annual conference of the Royal Air Forces Association, held at Scarborough on June 9th, 10th and 11th. Over 30 resolutions were passed during the conference, affecting such matters as pensions, welfare, contributions to the R.A.F. Benevolent Fund, and Battle of Britain Week. The Association's national council is to apply for the Grant of a Royal Charter to the R.A.F.A.

Esher Trophy Presented

FOR the fourth time in its history, No. 604 (County of Middlesex) Squadron, R.Aux.A.F., has won the Esher Trophy, which is presented annually to the Auxiliary squadron considered most efficient in flying, maintenance, recruiting and discipline. The ceremony of presentation took place in the garden of Buckingham Palace at noon on Wednesday, June 21st, when S/L. K. T. Lofts, D.F.C., the Commanding Officer of No. 604 Squadron, received the Trophy—a bronze figure of Perseus—from His Majesty the King. The last Squadron to win the award, in 1938, was No. 603 (City of Edinburgh); competition for the Trophy lapsed during the war.

Over 100 officers and airmen of No. 604 Squadron paraded in the Palace quadrangle for inspection by the King and Queen. Their Majesties are both closely connected with the R.Aux.A.F.: the King is Air Commodore-in-Chief, R.Aux.A.F., and the Queen is Honorary Air Commodore of No. 600 (City of London) Squadron. In attendance on their Majesties were Mr. Arthur Henderson and Lord Templewood, No. 604 Squadron's Honorary Air Commodore.

The parade and presentation were watched from the terrace of the Palace by Princess Margaret and relatives of members of the Squadron. Addressing the parade, the King said: "We realize that your efficiency has been won at the cost of absence from your homes and families, and we are glad to acknowledge the sacrifices which they, as well as you, have made to achieve it. In honouring you to-day we are paying tribute also to the whole of the R.Aux.A.F.

PROUD MOMENT: S/L. K. T. Lofts, D.F.C., the Commanding Officer of No. 604 Squadron, receives the Esher Trophy from His Majesty the King. The ceremony is reported on this page. Following the Buckingham Palace parade, No. 604 Squadron held a reception at Londonderry House; it was attended by many distinguished guests.

R.A.F. Display Notes

LAST week we published notes on some of the R.A.F. Display items, and in this issue (pages 768-769) we give some further general details. There follow notes on some individual "turns."

* * *

An original aerobatic event will be given by two Balliol trainers, whose pilots will perform manœuvres requested by the public. Two roving microphones will be passed through the enclosures, and spectators will be able to ask the pilots to execute any manœuvre. Requests and the pilots' acknowledgments will be heard over the loudspeakers.

* * *

Radio-telephone conversations will be relayed to the public enclosures during several other Display items—including No. 54 Squadron's formation aerobatics and the pupil-and-instructor act, to be performed in Chipmunks. R.A.F. Regiment armoured cars, making a dummy attack on tanks, will be heard calling up air support. Two formations of Vampires will meet their request and attack with bombs and rockets. During another event Mosquito bombers will attack the

SERVICE AVIATION . . .

airfield, supported by low-flying Hornet intruders; spirited defence will be offered by Meteor intercepters.

* * *

The R.A.F. Schools of Cookery at Halton and Innsworth will prepare tea for the King and Queen, the Prime Minister and other distinguished visitors, and will also cater for the 5,000 R.A.F. personnel taking part in the Display. A cooking staff of 60 trainees (many of them National Servicemen) from the schools, supervised by about five instructors, will be required for the task. Field kitchens will be borrowed from neighbouring Army units.

Auxiliary Appointment

THE Air Ministry announces the appointment of F/O. J. P. Hitchin to command No. 3611 Fighter Control Unit of the R.Aux.A.F., based at R.A.F. Fazakerley, Lancs., with the acting R.Aux.A.F. rank of Squadron Leader.

S/L. Hitchin joined the Air Force in September, 1939, as an aircraftman for police training in the R.A.F.V.R. and was granted a commission in 1941 before being posted to Air Headquarters, Iraq, as a signals security officer. He served in a similar capacity at Air H.Q., Egypt, and Air H.Q., Middle East, before returning to the U.K. in August, 1945. He was released from war service in 1947, after 18 months' on signals duty at Air Ministry as an acting squadron leader, resuming this rank on joining the R.Aux.A.F. at Fazakerley in July, 1949.

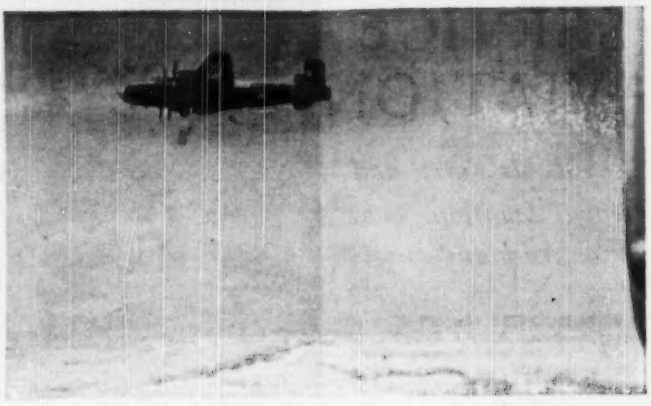
A.T.C. Flying Scholarships

FREE flying instruction at selected civil clubs for scholarship winners in the Air Training Corps and the R.A.F. Sections of the Combined Cadet Force is to start early next month. A number of clubs have been invited to share in the scheme. The Air League will provide funds for further flying scholarships in addition to those (approximately 200 annually) provided by the Air Ministry. Training will be undertaken by the clubs up to the standard set for private pilot's licence, which requires a minimum of 30 hours' flying instruction.

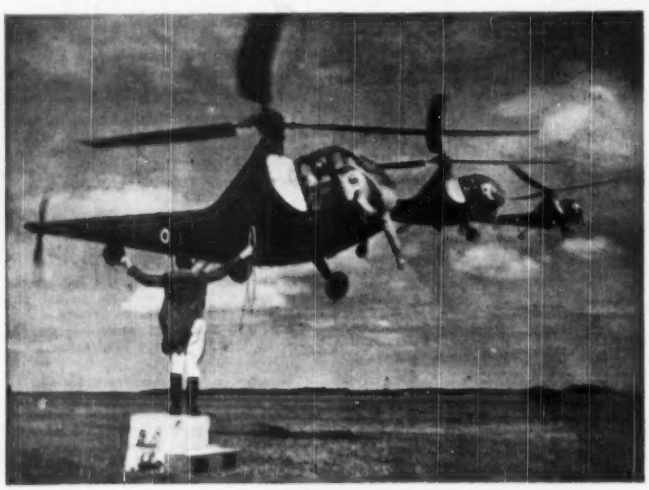
Fifty-eight cadets have so far been awarded flying scholarships, and now await their instructions. Selections from a second batch of candidates who attended for the final interview by a Board at Headquarters, R.A.F. Reserve Command this month are now being made. Cadets for nomination must possess the A.T.C. Certificate of Proficiency and be not less than 16½. No cadet will begin flying training until he has reached his 17th birthday.

Cadets will be encouraged to complete their course in one continuous period, and they must attend for at least two consecutive weeks. The aim will be to complete training in about two months, although it could be possible for some cadets who work hard to get their licence within a month. A time limit of three months is fixed for each cadet. If after the first nine hours of flying instruction a cadet is regarded by his instructor as unlikely to attain the private pilot's licence standard within the three months he may be suspended from training.

The A.T.C. pupils will train in uniform, and will be assigned to clubs in parties of not less than two at a time. Like all other members, they will conform to club rules, but they will not be allowed in the bar or in any part of club premises where alcoholic drinks are consumed.



LEGAL LITTER: Postcards by the hundred scatter from this Halifax of the R.A.F Meteorological Research Flight, flying 15,000ft over London. The Meteorological Office hopes to compile information on turbulence in the upper atmosphere from the fall of the cards, on which members of the public are asked to write certain details before returning them.



HELIPHANTS: Dress rehearsal, at Beaulieu, of one of the most promising items on the R.A.F. Display programme—the helicopter circus. The performers are Sikorsky Hoverfly 2s, flown by W/C. L.P. Gibson, S/L. R.F. Martin and S/L A. St. J. Price; the ringmaster is Flight Sergeant J. D. Hayhow.

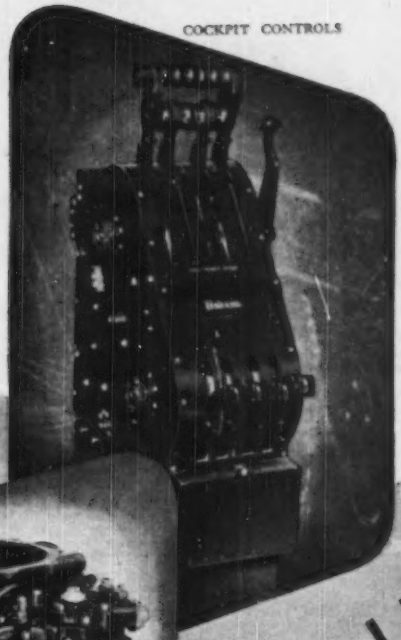
R.A.F. Yacht Club

THE Royal Air Force Yacht Club wishes to increase its membership, which is open to all serving and ex-officers of the R.A.F., R.Aux.A.F., R.A.F.V.R., W.R.A.F., W.A.A.F., former officers of the R.F.C. and R.N.A.S., civilians of officer status whose names appear in the Air Force List, and officer cadets.

Formerly known as the Calshot Yacht Club, the club was formed in 1932 to encourage amateur sailing, racing and motor-boating by commissioned officers of the R.A.F. The club-house is at the end of Calshot Spit and consists of portions of Calshot Castle and two Army huts. Information concerning membership may be obtained from the Secretary, R.A.F. Yacht Club, Calshot Castle, R.A.F. Calshot, near Fawley, Southampton, Hants.

Reunion

IT is proposed to hold a reunion in London, for the personnel of the R.A.F. and Fleet Air Arm, past and present, who learned to fly at Pensacola, Florida, under the U.S. Navy Training Scheme. Those interested should contact L. V. Armstrong, 14, Newbury Court, Herman Hill, Wanstead, E.11. Tel. Wan. 7217.



COCKPIT CONTROLS

INJECTION CARBURETTERS

on the new Universal Freighter

For maximum reliability and fuel economy, the Bristol Hercules engines of Britain's largest freighter aircraft are equipped with HOBSON Injection Carburetters.

Control of engine power and r.p.m. is also provided by dual HOBSON Cockpit Controls. These latter units allow for the additional control of the braking propellers through aft movement of the pilot's throttle levers from the fully-closed positions, and automatically safeguard against engine stall during propeller reversal, engine overspeed during the propeller zero pitch range, and swing of aircraft when applying propeller braking.

The Blackburn & General Aircraft Company is yet another leading manufacturer to rely on HOBSON experience, knowledge and traditions of quality.

Hobson

CARBURETTERS · COCKPIT CONTROLS

H. M. HOBSON LTD., FORDHOUSES, WOLVERHAMPTON. *Licensees in U.S.A. and Canada: Simmonds Aerocessories Inc.*

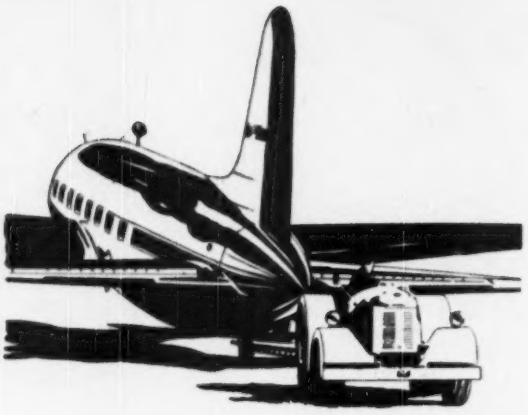
Ground Staffs know

that an aircraft spends more time on the ground than in the air.

Efficient air travel depends on smart ground organization, quick turn-around, speedy refuelling, freight loading—in short, economical handling at ground level.

That's the job of the David Brown TASKMASTER, designed for just this work, with its powerful 39 b.h.p. engine, rugged construction and 6-point towing hitch. With a fast top speed of 22 m.p.h. the TASKMASTER has a first gear drawbar pull of 3,500 lb. and complies with the Road Traffic Act.

Write for our leaflet DBT. 161 or better still, let us arrange a demonstration on your own airfield.



DAVID BROWN

Industrial Tractors

DAVID BROWN TRACTORS LIMITED MELTHAM HUDDERSFIELD

KING KEEP AHEAD!

SENSATIONAL DEVELOPMENT
IN THE DESIGN OF PATENT FOLDING HIGH-DENSITY

SEATING

	SINGLE	DOUBLE	TRIPLE
Weight	12½ lbs.	21¼ lbs.	31½ lbs.
Price	£14	£26 10	£37 10

QUICK DELIVERY

Instantaneous conversion from passenger plane to freighter—or vice versa. These extremely comfortable seats can be folded flat on the deck or completely removed for storage in luggage compartment, in seconds. *STEEL tubular structure. Ideal for tropical climates.*

A.R.B. APPROVED

Full particulars from

KING AIRCRAFT CORPORATION

5th Street, Montrose Avenue, Hillington, Glasgow, S.W.2

Telephone : Halfway 4571 (P.B. Ex.)

APPROACH MAPS BY COURTESY OF MESSRS. INTERNATIONAL ARRADIO LTD.

WORLD-WIDE RELIABILITY

by

CONTROLS

CIAMPINO AIRPORT (ROME)
Lat.: 41° 47' 50" N. Long.: 12° 35' 35" E. Elev.: 425 ft.
Tarmac: 2,461 × 66 yds. Distance from Rome: 8 miles.

Electro-Pneumatic, Hydraulic and Fuel Valves, Pneumatic Jacks, Pressure Switches and Control Valves, Thermostatic Inching Controls, Cabin Heater and Temperature Control Equipment, Seamless Metal Bellows and Packless Glands.

TEDDINGTON CONTROLS LTD.

CEFN COED, MERTHYR TYDFIL, SOUTH WALES

DAKOTA OPERATORS

ARB APPROVED

Obtain the mandatory British C. of A. requirement Fire Modifications— Nos. 101 to 105 inclusive.

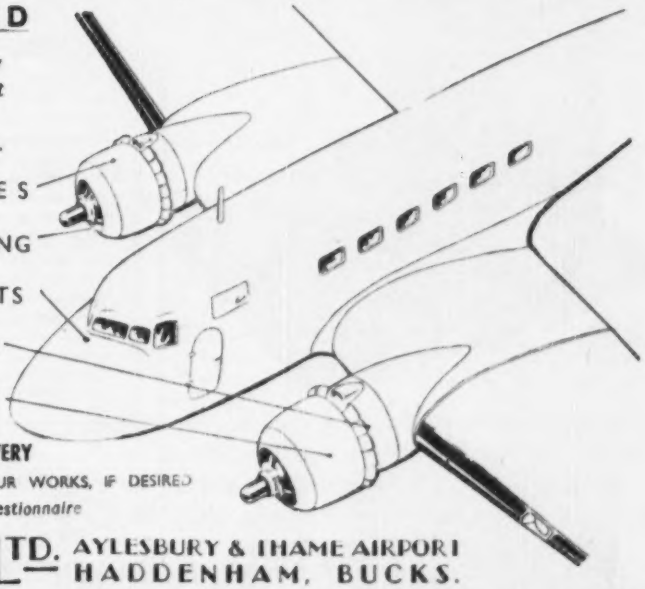
FIREPROOF HOSES

PROPELLOR FEATHERING

FIRE WARNING LIGHTS

FIREPROOFING FIREWALL

FIRE EXTINGUISHER SYSTEM



AVAILABLE FOR IMMEDIATE DELIVERY

CONVERSIONS UNDERTAKEN AT OUR WORKS, IF DESIRED

Write at once for Questionnaire

AIRTECH LTD.

AYLESBURY & THAME AIRPORT
HADDENHAM, BUCKS.
Aylesbury 1163

SKYHI
HYDRAULIC
Aircraft
JACKS

MODEL S.869

Specially designed for dealing with **TWIN WHEEL AIRCRAFT** as the narrow width of the Jack enables it to go between the twin nose wheels

Ball or Flat Head as required

MODEL S.869 **18,000 lbs.** Capacity
6 in. Closed Height. 6½ in. Hydraulic Lift.

MODEL S.2061. **38,000 lbs.** Capacity
11 in. Closed Height. 11 in. Hydraulic Lift.

SKYHI LIMITED
SKYHI WORKS, WORTON RD., ISLEWORTH, MIDDX.
Telegrams: Skyhijack 'Phone, London. Telephone: HOUnslow 2211-2-3

THE COLLEGE OF AERONAUTICAL AND AUTOMOBILE ENGINEERING
(The Chelsea College.)
Complete practical and technical training for entry to Civil and Commercial Aviation or the Automobile industry.
Entry from School-leaving age.

Syllabus from Bursar
Sydney Street, Chelsea, S.W.3.
Telephone: FLAxman 0021.

tenacity
FOR THE AIRCRAFT INDUSTRY

Surridge's "G.P." Cements remain permanently tenacious in the face of all hazards of vibration, water, anti-freeze mixture, etc. Their powerful bonding action does not deteriorate with age and their enduring elasticity prevents any cracking or loosening. They are particularly recommended for the effective, trouble-free adhesion of rubber to metal, wood, fabric and linoleum.
For prices and samples, or specialist help with any adhesive problem in the Aircraft Industry, write to us today.

SURRIDGE'S PATENTS LTD
New Works, Croydon Road, Elmers End, Beckenham, Kent.
'Phone: Beckenham 0166.

● *For the waterproof sealing of cupola panels, windows and screens, use* **SURRIDGE'S GLAZING COMPOUND Number 12.** *Resistant to vibration and anti-freeze.*

SURRIDGE'S **G.P. CEMENTS**
BLACK, Number 11
WHITE, Number 11A

FLIGHT

CLASSIFIED ADVERTISEMENTS

Prepaid Advertisement Rates: 3/- per line, minimum 6/-, average line contains 6-7 words. Special rates for Auctions, Contracts, Patents, Legal and Official Notices, Public Announcements, Tenders, 6/- per line, minimum 8/- per paragraph. Box Number facilities available for the convenience of private advertisers, add 2 words plus 1/- to defray the cost of postage and forwarding replies. Press day, FIRST POST THURSDAY, or one day earlier if Bruach Offices. No responsibility accepted for errors. Remittances payable to Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1.

AIRCRAFT EQUIPMENT

Large stocks of new and unused clothing, life saving, oxygen and electrical equipment for aircraft.

Large supplies already delivered to many foreign governments; certificates available if required.

We welcome home and overseas enquiries, giving either description or R.A.F. vocabulary section and reference numbers.

D. LEWIS

LTD. (Dept. F.)

Leather Clothing Manufacturers for Home or Export.

124, GT. PORTLAND ST., LONDON, W.1

Trade Enquiries Invited.

Tel: Museum 4314. *Tele:* Avialkit, Wesdo, London.

The...
British Air Line Pilots' Association
SUITE 6, 9-10 MARBLE ARCH, W. 1
Tel.: AMBassador 1357

Membership open to all Commercial and Service pilots. For full details as to objects and particulars of Membership please write to secretary.

TRANSFERS OF SQUADRON CRESTS
for Aircraft, M.T., Notice Boards, etc.
THE BRITISH TRANSFER PTG. CO. LTD.
Tel.: COVENTRY 4021

AIRCRAFT FOR SALE

FIELDS

PLEASE refer to our half-column displayed advertisement.—Fields Aircraft Services, Ltd., Croydon Airport, Croydon 7777. Cables: Fieldair, Croydon. [0258

R. K. DUNDAS, Ltd., AVIATION Division, 29, Bury St., London, S.W.1, FOR all AIRCRAFT and spares. AIRCRAFT and aerodrome equipment. 29 Bury St., London, S.W.1. WHITEHALL 2848. [0559

F. G. MILES, Ltd., Redhill Aerodrome, Surrey. Nutfield Ridge 2200. TWO Miles Gemini Mark 1A with 12 months' C. of A. available shortly; these machines are at present being overhauled and reconditioned in our works by Miles craftsmen; enquiries invited for details. F. G. MILES, Ltd., Redhill Aerodrome, Surrey. Nutfield Ridge 2200. [0590

TAYLOR Cub 2-seater, 250 hours since new, C. of A. one year; offers.—Box 4949. [5107

£395—Proctor III, 12 months C. of A., airframe 250 hrs., engine 90 hrs.—Vendair, Croydon Airport, Croydon 5777. [0604

CONFIDENTIALLY we like to sing our praises, but find it unnecessary as our many satisfied customers throughout the world do it for us. SELECTIONS of our plus-perfect aircraft, Lockheed 14 @ £5,500; Lockheed 12 @ £4,000; Beechcraft D.18s from £6,000; Doves from £9,500; Dakotas from £13,000; Junkers 52 £5,000; a'lot Proctors, Magisters, Messengers, Tigers, Fairchilds, etc. C.A.B. are the American aircraft specialists. CENTRAL AERONAUTICAL BUREAU, Croydon Airport. Croydon 5362. Cable: Centralair, Croydon. [5133

MAGISTER G-AITN, super finish, pale blue, spatted, fully modified, C. of A. to 9.1.51, E-hours 200; £580.—Woodward, c/o Derby Aero Club. [5108

A SUPERBLY fitted Anson Mark 1 for sale, 7 passenger seats, upholstered and soundproofed by Rumbold, long-term C. of A., radio VR/TR.1143, readily convertible as a freighter; best offer secures.—Box 4784. [5091

ANSON Mark 1 Freighter; early delivery, with 12 months' C. of A., fully modified with low hours both airframe and engine, T/R 1154/55 radio, payload 1,845lb.; 7 passenger seats can be fitted if required.—Box 4785. [5090

(continued on next page)

ARMSTRONG SIDDELEY COVENTRY

REQUIRE SENIOR DESIGNERS TO STRENGTHEN THEIR TEAM DIRECTING THE DESIGN AND INSTALLATION OF THEIR NEW GAS TURBINE ENGINES. INITIATIVE AND ENTHUSIASM RECOGNISED AND REWARDED.

Apply, stating qualifications, direct to the Chief designer (Aero Engines)
ARMSTRONG SIDDELEY MOTORS LIMITED, COVENTRY.

ENGINEERING OPPORTUNITIES

IMPORTANT GUIDE

This unique handbook, "**Engineering Opportunities**" outlines over 200 Home Study Courses of technical instruction, including **Aeronautical Engineering, Aeronautical Draughtsmanship, Aero Engines, Air Navigation, Aircraft Engineers' Licences (Ground Engineers), A.F.R.Ae.S., A.M.I.Mech.E., R.A.F. Maths.**, etc. Our Courses have been approved by the **Royal Aeronautical Society** and

WE GUARANTEE

"NO PASS—NO FEE"

A copy of this enlightening guide to well-paid posts will be sent on request—**FREE**

BRITISH INSTITUTE OF ENGINEERING TECHNOLOGY
306 Shakespeare House, 17-19 Stratford Place, London, W.1.

BIET

FIELD'S

GEMINI AIRCRAFT

We have two of the finest Gemini aircraft in the country, one with 55 hours from new and the second with 180 hours from new. We do not want these Gemini aircraft and although we are not prepared to give them away, we will consider a sensible offer. We might also consider a part exchange against an Auster or similar current aircraft. Write to us at once and secure a bargain.

Also

LIGHT AIRCRAFT

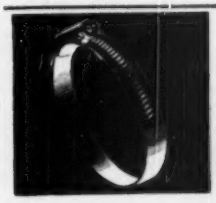
Many popular types available at competitive prices.

PRATT & WHITNEY SERIES 1830 ENGINES

Can be supplied, overhauled or exchanged. Write for details.

FIELD AIRCRAFT SERVICES LTD.
Croydon Airport, Surrey

Telephone: Croydon 7777.
Cables: Fieldair, Croydon.



Jubilee PATENTED WORM DRIVE CLIP
the finest **CLIP** *in the world*

L. ROBINSON & CO. (GILLINGHAM) LTD.
Gillingham Kent

AIRCRAFT FOR SALE

W. S. SHACKLETON, Ltd., 175, Piccadilly, London, W.1, EUROPE'S biggest aeroplane dealers.

DAKOTAS!
DAKOTAS!!
DAKOTAS!!!

IN the past three weeks we have sold Dakota aircraft hitherto owned by: Westminster Airways, Ltd., Hornton Airways, Ltd., Kearsley Airways, Ltd. However, we still have for sale two of the beautiful passenger/freighter Dakotas owned by Kearsley's.

£13750—Douglas Dakotas. Freighter passenger soundproofed version, incorporating all C.A.A. and A.R.B. modifications. We have been requested by Kearsley Airways, Ltd., who are ceasing flying operations, to sell their 2 Dakotas. We have examined these personally. They are in perfect condition and will compare favourably with any similar aircraft anywhere in the world. New Certificates Airworthiness and nil hours on engines and propellers since complete overhaul. The 26 Rumbold seats can be removed in a few minutes and the machines converted to pure freighters. Double cabin doors, 24-volt electrical system, latest type cabin heating and de-icing. Full range of spares including engines and propellers. Price open to negotiation.

£4950—Douglas DC 3. De luxe 21-seaters with new 1 year's Certificate Airworthiness. The two Wright Cyclone GR.1820-G.102 engines have nil hours since complete overhaul. All-metal galley, full radio and all latest A.R.B. requirements incorporated.

W. S. SHACKLETON, Ltd., now offer some unusual bargains:—

£950—Chrislea Super Ace Series III 4-seater. 1 Year's Certificate Airworthiness by the makers. Gipsy Major 10 engine (in current production). Only 40 hours since new. Fitted generator, landing and navigation lights, etc., etc. This almost brand new aeroplane is offered at much less than half the cost price.

£1450—D.H. Dragonfly, with new Certificate Airworthiness and complete with full dual controls and instruments, starters, V.H.F., radio, cabin heating, navigation lights, etc. With the aircraft we include a vast assortment of spare parts without extra charge. This twin Gipsy Major engined 4-passenger aeroplane has a really outstanding single engine performance.

£250—D.H. Puss Moth. Gipsy Major engine. New Certificate Airworthiness. Airframe rebuilt since the war and recovered, repainted and reupholstered. It hurts us to offer it at such a price.

£350—Stinson Voyager cabin monoplane. New Certificate Airworthiness. 90hp Continental engine. Two seats side-by-side with full dual wheel controls and in really splendid order.

W. S. SHACKLETON, Ltd., 175, Piccadilly, London, W.1. Tel. Regent 2448/9. Overseas Cables: "Shacklud, London." [0070

OWING to B.E.A. superseding our schedule service we have Rapide aircraft for sale; 8 passenger seats; 8 Channel V.H.F. radio with S.B.A. and C. of A.; offers invited.—Patrick Motors, Ltd., 479, Bristol Rd., Birmingham, 29. Tel. Selly Oak 1104. [0594

AIRCRAFT WANTED

W. S. SHACKLETON, Ltd., 175, Piccadilly, London, W.1,
EUROPE'S biggest dealers in used aircraft, are always in need of new or used civil aeroplanes of all types for resale. We will either buy your machine for cash, sell it for you on a modest commission basis, or take it in part exchange for another aeroplane. We offer you unrivalled service.

W. S. SHACKLETON, Ltd., 175, Piccadilly, London, W.1. [5134

R. K. DUNDAS, Ltd.—We have a brisk demand from home and overseas; send us details of anything you have to offer, aircraft, engines, spares, etc., etc.—R. K. Dundas, Ltd., Aviation Division, 29, Bury St., London, E.C.1. Whitehall 2848. [0558

AIRCRAFT ACCESSORIES AND ENGINES

AIRCRAFT bulbs, fuses, switches, instruments, radio parts and numerous other accessories. British and American.—Supiex Lamps, Ltd., 259, High Holborn, W.C.1.

HOME and overseas aircraft operators, don't waste time and money unnecessarily, if in need of British and American instruments, electrical accessories and ancillary equipment, first contact:

LITCO FLIGHTS AIDS, Station Approach, Boxmoor, Herts. Tel. Boxmoor 1564. Grams: "Litco Flight Aids, Boxmoor, Herts." [0615

FIRE!—No 5 A.M. fire extinguishers with A.R.B. release always available from stock.—National Fire Protection Co., Ltd., Essex House, Station Rd., Leatherhead (2200). Works: Feltham and Hanworth. [0590

NEW American electrical spares for Dakotas and other types comprising Eclipse starters, armatures, boost-pump motors, switches, solenoids, etc.; any reasonable offer to clear.—32, Sidney Rd., Walton-on-Thames. [5156

ENGINES, Gipsy Major, completely overhauled. Queen IIs; Pratt & Whitney R985, 70 hours since new; Pratt & Whitney 1830/92, nil since overhaul, £550; Dakota hydraulic jacks, 10 and 15 tons, from £15 each; Procter spares, Tiger Moth spares, Dakota propellers, Pratt & Whitney spares and Gipsy engine spares.—Vendair, Croydon Airport, Croydon 5777. [0607

AIR CHARTER

BROOKLANDS AVIATION, Ltd. — Proctors and Rapides available for air charter at Brooklands Aerodrome, Weybridge (Tel. Byfleet 4361). Sywell Aerodrome, Northampton (Tel. Moulton 2135511); Shoreham Airport, Sussex (Shoreham 2366). [0506

AIRCRAFT SERVICING

F. G. MILES, Ltd., Redhill Aerodrome, Surrey. Nutfield Ridge 2200.

AN approved design, maintenance and repair organisation staffed by experts on Miles aircraft. Major and Minor modifications a speciality; radio installations.

APPROVED instrument test shop; specialists in race preparations.

F. G. MILES, Ltd., Redhill Aerodrome, Surrey. Nutfield Ridge 2200. [0591

BROOKLANDS AVIATION, Ltd., Brooklands Aerodrome, Weybridge.—C. of A. overhauls, modifications and conversions. Tel., Byfleet 456. [0505

REPAIRS and C. of A. overhaul for all types of aircraft.—Brooklands Aviation, Ltd., Civil Repair Service, Sywell Aerodrome, Northampton. Tel. Moulton 3281. [0507

CARAVANS

A CARAVAN innovator!

EX-EDITOR caravan paper living in van 13 years has been the prime innovator in the trade during the last few years. The first and still the only one to give an unconditional free-van-for-a-leaky-one guarantee, the first to have a really enormous selection, the first and only one still to have a really big selection right in the centre of London, the first to start a Protection Association for Caravan Residents. Better h.p. terms, too, and free fares for two if van bought. So why not write for bigger and better brochures to Head Office:—

A. S. JENKINSON, Bath Rd., Taplow, Bucks. Tel. Maidenhead 1454 (5 lines—note changed number). Open always. Easy to reach—right on Main A4, Quixhills Maidenhead. Taplow Station 4 minutes. "Our equal selection." London branch (with ex-R.A.F. manager), corner of Semley Place and Ebury St., Victoria, S.W.1. Tel. Sloane 9255. 4 minutes Victoria Station (near Airways House in Buckingham Palace Rd.) Hours 9 a.m. to 7 p.m. 7 days a week. [0276

FOR all types of caravans, living or holiday, write for catalogue to Country Life Caravans, Romsey. [0596

BERKELEY Ambassador de luxe, May, 1949, perfect condition, cost £960, offers near £725.—North Lavender Cottage, Mill Rd., Pakenham, Suffolk. [5123

BERKELEY caravan, latest Ambassador de luxe mobile home, £950; Courier, £450; de luxe Courier, £499; all-purpose Deputy, £425.—Full particulars from Mantle's Garages, Ltd., Biggleswade, Beds. Tel. 2113. [0567

HOME or hire.—Let ex-Servicemen help the Services; give us your housing worries or forget them on a holiday arranged by the Pathfinder Caravan Co., Ltd., Tedburn St. Mary, nr. Exeter. C.D.A.A. Member. [0578

ECCLES Enterprise, 15ft×7ft 6in double panelled, insulated, 4-berth gas lighting, large oven, fitted mains electricity, excellent condition, suitable living or towing; cost nearly £600, nearest £450 for quick sale.—Box 4852. [5099

X.L. CARAVANS, Ltd., hold finest selection of caravans for homes and holidays; see the new Winsome, Craftsmaster, Pinehurst, Harlow Tudor, Lansford Cavalier, Victor, Challenger, Willerby, Weyland, Safari, etc.; prices from £198; easiest terms.—X.L. Caravans, Ltd., Blue Star Garage, Maidenhead. Phone Maidenhead 0747. [0606

AS manufacturers and distributors of all leading makes of reliable caravans we offer quick delivery of Berkeley Ambassador and Courier, Investor, Raven Cottage, Westway, we can offer the most attractive hire purchase terms and arrange delivery and sites with water and sanitary facilities; write for free copy of "Caravan Topics."

WATFORD CARAVANS, Ltd., Hall Park Garage, Berkhamsted. Tel. Berkhamsted 820. [0602

CARAVANS.—£199 only; popular Streamlite Sprite, 4-berth, polished oak furniture, large observation windows, if h.p., £71 cash down, also 17ft Lynton, separate end kitchen, interior lavatory, 1 double, 2 single beds, £339; twenty other leading proprietary makes in stock.—Stafford & Co., County Distributors, Kirkheaton (Bus terminus), Huddersfield, always open; the best value for money depot in the North. [5129

CLOTHING

RAF. and R.N. officers' uniforms purchased; large selection of R.A.F. officers' kit for sale, new and reconditioned.—Fisher's Outfitters, 66-68, Wellington St., Woolwich. Tel. Woolwich 1055. [0587

CLUBS

ROCHESTER FLYING CLUB

OFFERS full club facilities and over-night accommodation to members; subscription £2/2 per annum; solo flying in Tiger Moth, Auster and Magister aircraft at £5 per hour and dual £5/5 per hour; one hour from London.—Tel. Bluebell Hill 212. [0595

REDHILL FLYING CLUB, Redhill Aerodrome, Surrey, for instruction.—Nutfield Ridge 2245-3254. [0548

SURREY FLYING CLUB, Gatwick Airport, Surrey. Attractive clubhouse, full bar and catering facilities.

SAFE, easy to fly, Piper Cubs at low rates. £2/5 solo, dual £2/15; also Fairchild Argus; daily hire; special reduced block rates available.

VICTORIA 8th, to Gatwick Airport direct, 35 minutes, step from platform to airport. For full particulars write, 'phone or call personally. 'Phone Crawley 695, extn. 5. [0593

HERTS & ESSEX AERO CLUB, Broxbourne Aerodrome, Nazeing Essex, train from Liverpool Street or Green Line Route 715 from Broadcasting House; trial lesson, half an hour for 50/-.—Tel. Hoddesdon 2455 and 24221. [0230

BREVET FLYING CLUB.—Fully licensed residential clubhouse, excellent food; membership now exceeds 1,000; meet the flying types at the "Brevet," membership £1/1 p.a.—Secretary, 11, Chesterfield St., Mayfair, W.1. Gro. 1353. [0592

CLUBS

LEARN to fly for £34, instructors' licences and instrument flying for £5 an hour; night flying £5/10 an hour, residence 4½ths weekly, approved M.C.A. private pilot's licence course.—Wiltshire School of Flying, Ltd., Thruxton Aerodrome, Andover, Hants. [0234

WEEKLY gliding courses for beginners; every week from June to September inclusive. Full tuition to B standard, with R.Ae.C. certificates included. Hotel accommodation, all meals. Club membership fees and all flying fees for inclusive charge of £12/12. Splendid opportunity to learn world's finest sport while enjoying country holiday. Spacious airfield in West Country, 650ft above sea level.—Apply for full particulars and descriptive leaflet, Bristol Gliding Club, 2, Berkshire Rd., Bristol, 7. [5131

CONSULTANTS

WING COMMANDER R. H. STOCKEN, R.A.Ae.S., Eagle House, 109, Jermyn St., London, S.W.1. Tel. Whitehall 8865. [0419

HOTELS AND ACCOMMODATION

ROYAL OAK HOTEL, Keswick-on-Derwentwater, heart of English Lake District, offers restful holiday to Air Force personnel; first-class accommodation at reasonable charges. [0414

INSURANCE

ALL types of aircraft insurance and personal accident cover.—Apply to J. W. T. Amey, Messrs. R. J. Moffat & Co., Percy House, 796, High Rd., Tottenham N.17, Tottenham 2005-6-5. [0584

PACKING AND SHIPPING

R. & J. PARKS, Ltd., 148/9, Fenchurch St., E.C.2. Tel. Mansion House 3085, official packers and shippers to the aircraft industry. [0012

PERSONAL

HONEYMOON couple seek passage to Spain by car or plane, Aug. 5, expenses shared.—Box 5017. [5124

TIME RECORDERS

STAFF time checking and job costing time recorders (all makes) for quick cash sale; exceptional condition.—Box 6905 [0040

TIME recorders, service rental.—Tel. Hop 2259. Time Recorder Supply and Maintenance Co., Ltd., 157-159, Borough High St., S.E.1. [5092

TUITION

AIR SERVICE TRAINING.

SCHOOLS of flying, navigation, radio and engineering; for details apply to
THE Commandant, A.S.T., Hamble, Hants. [0527

SOUTHEND MUNICIPAL FLYING SCHOOL. Tel. Rochford 56204. No entrance fee; no subscription; M.C.A. approved for 30-hour course for private pilot's licence; Auster and Procter aircraft; solo from £2/18/4 per hour; dual from £3/3/4; Austers and Procter fitted with V.H.F. radio.

NIGHT flying in Austers £4/8/4 per hour dual or solo.

LINK trainer 10/- per hour; courses for R/T operator's licence and instructor's endorsement.

FLYING training to commercial licence standard; restaurant and residential accommodation. [0532

SCHOOL OF NAVIGATION, University College, Wareash, Southampton. Flight navigators' course £16/10 for nine months tuition. Pilot licences £7/10 to £13/10 for six months tuition. Link instruction; all approach systems, 10/- per hour or £5/10 for ten hours. Postal courses. Hall of residence. [0537

MARSHALLS' FLYING SCHOOL OF CAMBRIDGE.—M.C.C.A. Approved courses (50 hours) for the Private Pilot's licence on Tiger Moth or Auster aircraft at £5 per hour; flying training for the Commercial Pilot's licence and instructor's endorsement; aircraft also available for aerial photography and air charter; no entrance fees or subscriptions.—The Airport, Cambridge. Tel. 56291 (Ext. 3). [0568

SITUATIONS VACANT

HANDLEY PAGE, Ltd., have vacancies for technical staff in the following capacities:—

AERODYNAMICISTS with 1st or 2nd class Hons. Degree and preferably with a minimum of 3 years' experience.

STRESSMEN with 1st or 2nd class Degree or H.N.C. in aeronautical subjects and minimum of 3 years' experience in aircraft stress analysis.

SENIOR design draughtsmen for Cricklewood and Radlett offices preferably with aircraft experience, consideration will be given to applicants with experience in light structural or mechanical engineering, possession of Ordinary or Higher National Certificate (Mech. or Elect.) an advantage.

WEIGHT control engineers with O.N.C. (Mech.).—Applications stating age, qualifications and details of experience to the Staff Officer, Handley Page, Ltd., Cricklewood, London, N.W.2. [5047

THE BRISTOL AEROPLANE Co., Ltd., have vacancies in their London and Bristol design offices for:—

SENIOR and Intermediate Draughtsmen with aircraft or general light engineering experience, preferably with Higher National Certificate or equivalent qualifications.

APPLICATIONS, stating age, qualifications and previous experience, should be addressed to The Staff and Labour Manager, The Bristol Aeroplane Co., Ltd., Aircraft Division, Filton House, Bristol. [5061

SITUATIONS VACANT

ROYAL NAVY.

COMMISSIONS in the instructor branch.

APPLICATIONS are invited from University graduates and qualified teachers under 26 years of age for Commissions in the Instructor Branch, Royal Navy.

REQUIREMENTS are for officers with qualifications in mathematics, science (physics, chemistry or metallurgy), or engineering.

COMMISSIONS will be granted for periods of 3, 4 or 5 years, and, after 2 years' service, opportunities will be afforded for officers to be transferred to the permanent list; a short service engagement in the instructor branch will discharge any candidate's obligation under the National Service Acts.

2.—Entry will be in two grades: selected candidates with 1st or 2nd class Honours Degrees receive approximately £528 in their first year's service, £547 in second year, £458 in third and fourth years, £474 in fifth year; other candidates receive £217 in first year, £510 in second and third years, £547 in fourth and fifth years; previous officer service in the recent war will be recognised for adjustment of seniority and rate of pay on entry; accommodation and rations are provided, or allowances in lieu; married officers, if aged 25 or over, normally receive marriage allowance of £358 per annum if not accommodated in official married quarters, £285 per annum if they are so accommodated, and £146 per annum in either case if under 25; an initial outfit allowance of £103 is paid, together with a free issue of certain articles of clothing; a reduced allowance is payable to candidates with previous Naval service as officers; tax free gratuities of £500, £400 or £300 are payable at the end of 3, 4 or 5 years respectively.

3.—Instructor officers serve both ashore and afloat and their duties include both technical instruction and general education; officers with suitable qualifications may also be trained and appointed for full or part-time meteorological and weather forecasting duties.

4.—Service in the instructor branch will, if desired, be treated as contributory service under the Teachers' (Superannuation) Acts, superannuation contributions being deducted from the above gratuities.

5.—Apply to Director (P) Education Department, Admiralty, London, S.W.1, for fuller details and application forms. [5098

FLIGHT REFUELLING, Ltd., have the following vacancies in their technical office:

(A) Senior stressman with engineering degree or equivalent qualification and minimum of 5 years' experience of stressing aircraft structures and components; some knowledge of aerodynamics desirable.

(B) Junior Assistant for weight analysis and general testing work; minimum qualification, Higher National Certificate; some previous experience desirable but not essential.

THE firm is engaged on an interesting and varied programme of research and development work on modern aircraft installations, and the positions afford ample scope for initiative.—Write, giving details of age, experience, qualifications, and salary required, to the Personnel Manager, Flight Refuelling, Ltd., Tarrant Rushton Airfield, Blandford, Dorset. [5098

SITUATIONS VACANT

WANTED immediately, Navigation Instructor, 1st class navigation standard for reserve flying school (lectures only).

QFI for lecturing W.R. pilots, must have thorough knowledge of C.F.S. ground lecture syllabus and A.2 category if possible; also up to green ticket lecture syllabus.

APPLY in writing to the Secretary, Universal Flying Services, Ltd., Fair Oaks Aerodrome, Chobham, Woking, Surrey. [5161

MINISTRY OF SUPPLY invites applications for following unestablished appointments in Experimental Officer Class in Aerodynamics Division of the Royal Aircraft Establishment, Farnborough, Hants.

MATHEMATICIANS. (a) For research in subsonic tunnels and seaplane tank; experience in experimental work or analysis desirable.

(b) For aeroplane project work involving performance calculation and analysis.

PHYSICISTS. For experimental work on analysis and research in subsonic tunnels and seaplane tank.

Candidates should have at least Higher School Certificate or equivalent qualification with mathematics or physics as a principal subject and preferably have experience in duties outlined; higher qualifications an advantage.

SALARY according to age, qualifications and experience within ranges: experimental officer (minimum age normally 23) £495—£645; assistant experimental officer, £220-£460; rates for women somewhat lower.

APPLICATION forms obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, W.C.2, quoting A175/50A, closing date 22nd July, 1950. H.Q.433-40 6/50 J.C. [5126

APPLICATIONS are invited from design draughtsmen and stressmen, also technical assistants with combined design and performance experience for work on both reciprocating and gas turbine aero engines.

APPLICATIONS should state full particulars of experience and qualifications and should be addressed to The Personnel Manager, The de Havilland Engine Co., Ltd., Stonegrove, Edgware, Middx. [0575

TEST engineer required to supervise testing of prototype gas-turbo-alternator; duties to include supervision of small experimental workshop.—Write, giving details of qualifications, experience and approximate salary required, to Box 4950. [5111

AIRCRAFT SPRING WASHERS

CROSS MFG. CO. (1938), LTD.
COMBE DOWN, BATH

SITUATIONS VACANT

VICKERS-ARMSTRONGS, Ltd., Weybridge, invite applications for the post of chief aerodynamicist.—Write stating experience and qualifications to Chief Designer, Weybridge Works. [5068

VICKERS-ARMSTRONGS, Ltd., Weybridge, invite applications for the post of electronics engineer to take part in electronic side of special projects.—Write stating experience and qualifications to Employment Manager, Weybridge Works. [5069

JIG and tool draughtsmen with varied experience of aircraft fixtures, jigs and tools, also mechanical draughtsmen for general engineering.—Apply, with full particulars, to Personnel Manager, The De Havilland Aircraft Co., Ltd., Hatfield, Herts. [5159

SENIOR and junior design draughtsmen with experience in light hydraulic Servo controls and/or fuel metering equipment; also technicians with development experience in this field.—Write Personnel Manager, Dowty Equipment, Ltd., Arle Court, Cheltenham. [5046

GLOSTER AIRCRAFT Co., Ltd., require an experienced Aerodynamicist; good salary offered to the right man.—Apply, giving full details of age, experience, qualifications and salary required, to the Chief Designer, G.A.C., Ltd., Hucclecote, Glos. [0577

EXPERIENCED electrical layout draughtsman urgently required, knowledge of aircraft electrics preferred but not essential.—Apply stating age and details, etc., to Staff and Labour Manager, The Bristol Aeroplane Co., Ltd., Aircraft Division, Filton House, Bristol. [5077

MINISTRY OF SUPPLY invites applications from mechanical and aeronautical engineers for unestablished appointments in the grade of experimental officer at the Royal Aircraft Establishment (Structures Department), Farnborough, Hants, in one of the following fields of work:—

(1) A175/50A (a) operational research on aircraft flight load conditions; experience in statistical analysis of data obtained from operational research required, experience of aircraft operating conditions desirable.

(b) (a) loading conditions for aircraft structures. (b) detail stress analysis, knowledge of aerodynamics desirable; (c) research and development and acceptance testing of aircraft propellors.

(2) A175/50A, development of strain measuring technique. Knowledge of photo-elastic and brittle lacquer methods desirable.

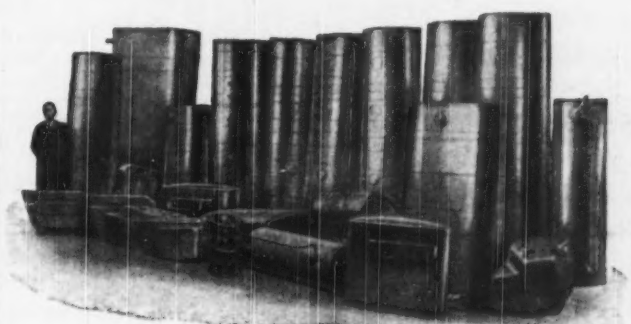
CANDIDATES should be at least 28 years of age and have experience of the work detailed; minimum qualification Higher National Certificate or equivalent; salary within E.O. range £495-£645 (men), £405-£520 (women).

WRITE for application form obtainable from Ministry of Labour and National Service, Technical and Scientific Register (K), York House, Kingsway, W.C.2, quoting appropriate reference No. Closing date 31st July, 1950. H.Q. 414-50 6/50 D.C. [5127

VACANCIES exist for several Design Draughtsmen (senior and junior), age 23 to 30, salary according to A.E.B. scales, permanent progressive positions, good working conditions.—Write in first instance, giving full particulars to Personnel Manager, Lockheed Hydraulic Brake Co., Ltd., Leamington Spa. [5120

(continued on next page.)

EVERYTHING IN SHEET METAL WORK
AND LIGHT ENGINEERING



AIRCRAFT
AUTOMOBILE
COACH AND
BUS BODIES
Municipal
and other
ALL-METAL
Vehicle Bodies

Refrigeration
COLD
STORAGE
HEATING
DRYING
AIR
Conditioning
MINING

TELEGRAMS:
BROMELPAR, SOUTHTOT
LONDON

E.G. Brown & Co. Ltd

TELEPHONES:
TOTTENHAM
2257, 2258 & 2259

161 West Rd., TOTTENHAM LONDON. N.17

THE AERONAUTICAL WORLD IS SAYING——DEAL WITH:—

ROLLASON ENGINES LTD.

CROYDON AIRPORT
Tel. CRO. 5151/3 CRO. 7744 Ext. 69

LARGE STOCKS OF **DE HAVILLAND GIPSY MAJORS, QUEENS III's, II's, and I's—ARMSTRONG SIDDELEY CHEETAH IX's and X's**

ALL ENGINES HAVE BEEN SERVICED AND ARE READY FOR IMMEDIATE INSTALLATION
ENGINE HOURS VARY FROM NIL SINCE EITHER NEW OR COMPLETE OVERHAUL. QUANTITIES OF SPARES ALWAYS AVAILABLE.
MAY WE QUOTE FOR YOUR REQUIREMENTS.

VERY HIGHLY COMPETITIVE PRICES QUOTED

SITUATIONS VACANT

WANTED B licence pilot preferably with assistant instructors endorsement; state age, wage, experience; bungalow provided.—525, Linthorpe Rd., Middlesbrough. [5128

APPLICATIONS are invited from senior and intermediate design draughtsmen, experience of aero engine design desirable but not essential; please write, stating age and giving details of previous experience in chronological order, to—The Personnel Officer, The de Havilland Engine Co., Ltd., Stag Lane, Edgware, Middlesex. [0449

APPLICATIONS are invited from senior stressmen with first-class qualifications desirous of working on new project of most interesting kind; excellent prospects of advancement for candidates with experience and enthusiasm.—Apply, stating experience, qualifications and salary required, to Chief Technician, Gloster Aircraft Co., Witcombe, Glos. [0440

RESEARCH engineer for experimental and development work on aerodynamical and heat transfer problems in connection with steam and gas turbine components, must be capable of leading a small research group; should have an honours degree or equivalent, with practical experience; age 26–35; salary £600 to £850 according to experience and qualifications.—Box 5109. [5137

A. V. ROE & Co., Ltd., have a vacancy for an Aerodynamicist in their Chadderton design office; a sound training in engineering or mathematics and some previous experience in aerodynamic stability and control work are essential qualifications; staff superannuation scheme and 5-day week; applications with full particulars of experience, qualifications, age, etc., should be made to the Labour Manager, A. V. Roe & Co., Ltd., Greengate Middleton Manchester [5095

GOOD senior draughtsman required for interesting programme of new work.—Apply in the first instance to the Chief Engineer, Percival Aircraft, Ltd., The Airport, Luton. [0593

AERODYNAMICISTS with an engineering degree and good mathematical background are required by the English Electric Co., Ltd., for their Aircraft Division at Warton Aerodrome, near Lytham St. Annes; applicants with sound practical experience of this class of work should write, giving full details of age, qualifications and experience, quoting reference 435, to—Central Personnel Services, English Electric Co., Ltd., 24-30, Gillingham Street, London, S.W.1. [5115

HANDLEY PAGE, Ltd., have vacancies for senior technical assistants of Higher National Certificate (Mech.) standard for mechanical and structural test work; applicants should preferably have a minimum of 5 years' experience in the testing of large fabricated structures; the positions offer exceptional opportunities and good scope for advancement to keen men with initiative.—Write stating age, technical qualifications and details of experience to Staff Officer, Handley Page, Ltd., Cricklewood, London, N.W.2. [5040

DEPARTMENT of Aeronautics, Imperial College, London, S.W.7 (University of London).—A vacancy exists for a lecturer in aircraft structures; salary scale £600-£1,150; children's allowance; superannuation under F.S.S.U., the appointment will be made at an initial salary within the scale, depending on qualifications; the lecturer will be concerned with the teaching of the subject at advanced level, and with research.—Applications should be addressed to the Head of the Aeronautics Department, Imperial College, London, S.W.7. [5132

SENIOR stressmen required immediately; first-class men with at least ten years experience; unfurnished modern flats available to selected applicants.—Replies, giving age and full details of technical qualifications and experience, to be addressed to Personnel Officer, Saunders-Roe, Ltd., East Cowes, Isle of Wight. [0585

SITUATIONS WANTED

ENGINEER Salesman seeks first class agencies or representation.—Taylor, 2, Argyle Road, Ilford. [5125

TECHNICAL Representative, 11 years leading British aircraft and engine manufacturers, D.H. Goblin and entire Gipsy range, "C" licence all Gipsy engines, extensive experience home and overseas, all branches of aircraft operation, organization and staff administration, jet and reciprocating engine overhauls, desirous of permanent, progressive appointment requiring initiative and responsibility, all replies treated confidentially.—Box 5085. [5130

COMMERCIAL pilot/chief Link Trainer instructor, practical and theoretical instrument approach specialist, requires permanent and progressive post, "B" licence endorsed Viking, DC3, Rapide, Fairchild 24, Tiger Moth. Total hours flown since 1935—3,720 solo, dual and night, 2,000 as captain, 49 different types. A1 category Link instructor, Link Trainer maintenance licence, P.M.G., R/2 licence, 12 years' experience on all types controlled approach and instrumentation specialisation. Some experience test flying and rotary wing aircraft, 14 years' experience workshop, practical ground engineering and/or flight engineer on production testing.—Apply Pomfret, 29, Cheyne Row, Chelsea, London, S.W.3. Tel. Flaxman 9644. [5135

WYNN

For Aircraft:—

FUSES, SWITCHES, RELAYS, FUSE BOXES, PRESS BUTTONS, RESISTANCES, NAVIGATION LAMPS, LANDING LAMPS, COCKPIT LAMPS, FILAMENT LAMPS, JUNCTION BOXES, ETC., ETC.

E. D. WYNN & CO.
INSTRUMENTATION ENGINEERS
MONTPELLIER DRIVE
CHELTENHAM

Telephone: 3264. Telegrams: Wynn, Cheltenham.

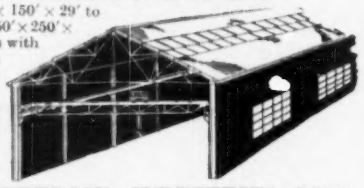
SECOND HAND

STEEL FRAMED BUILDINGS

Sizes: 62′ × 150′ × 29′ to eaves and 50′ × 250′ × 31′ to eaves with overhead travelling crane.

Other types available without crane.

Early Deliveries.



CHAMBERLAIN INDUSTRIES LTD.
STAFFA WORKS, STAFFA ROAD, LEYTON, E.10
TEL.: LEY 3678

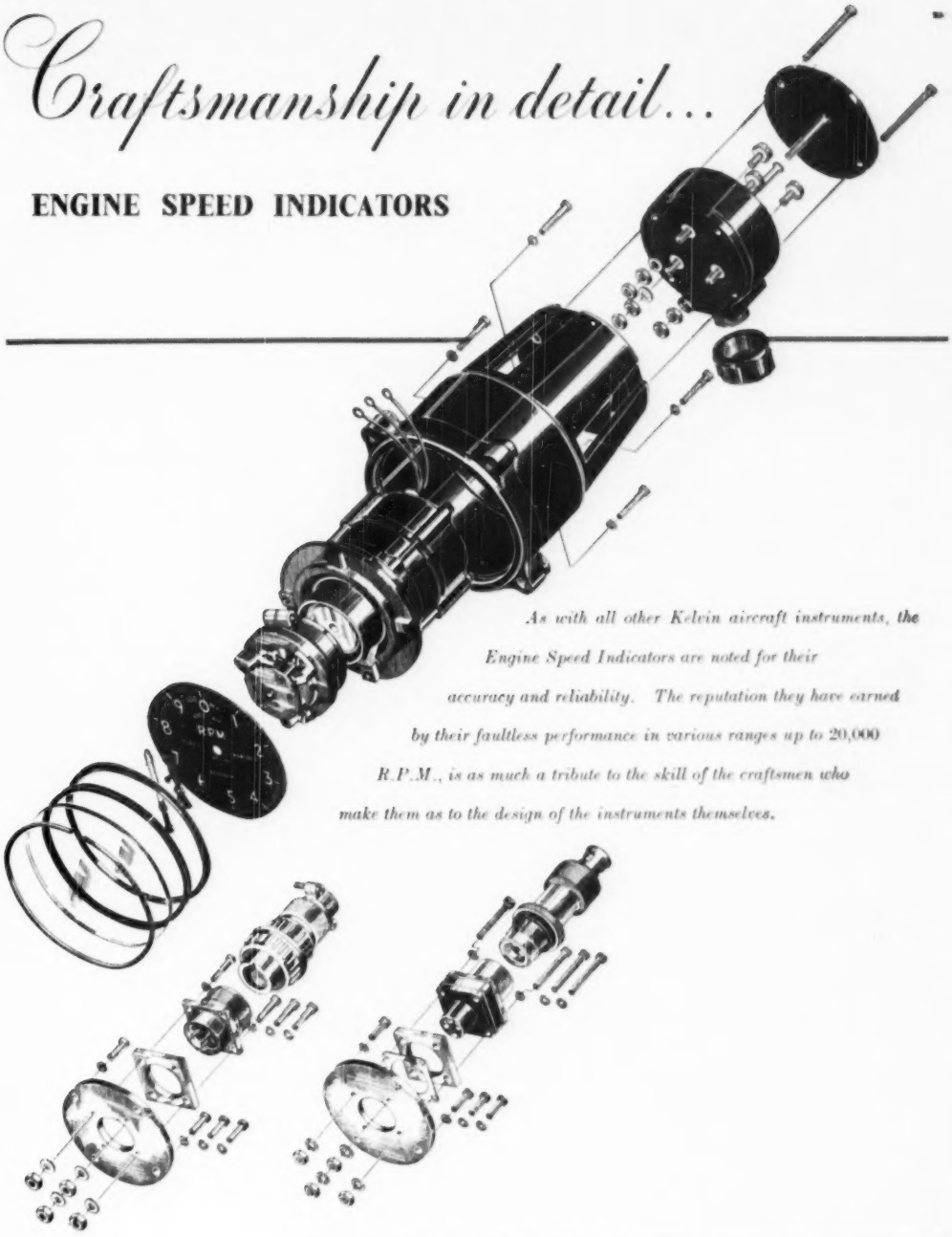
PURCHASING AN AEROPLANE?
then consult
"THE AEROCONTACTALOGUE"
Fully illustrated and indispensable to the prospective purchaser.

AEROCONTACTS LTD.
GATWICK AIRPORT, Near HORLEY, SURREY.
TEL: HORLEY 1510 TELEGRAMS: AEROCON, HORLEY

Printed in Great Britain for the Publishers, Iliffe & Sons Ltd., Dorset House, Stamford Street, London, S.E.1, by The Cornwall Press Ltd., Paris Garden, London, S.E.1. *Flight* can be obtained abroad from the following: Australia and New Zealand: Gordon & Gotch, Ltd. India: A. H. Wheeler & Co. Canada: The Wm. Dawson Subscription Service, Ltd.; Gordon & Gotch, Ltd. South Africa: Central News Agency, Ltd. Wm. Dawson & Sons (S.A.), Ltd. United States: The International News Co. Entered as Second Class Matter at the New York, U.S.A., Post Office.

Craftsmanship in detail...

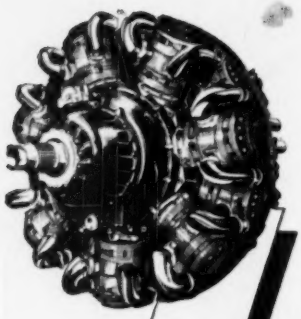
ENGINE SPEED INDICATORS



As with all other Kelvin aircraft instruments, the Engine Speed Indicators are noted for their accuracy and reliability. The reputation they have earned by their faultless performance in various ranges up to 20,000 R.P.M., is as much a tribute to the skill of the craftsmen who make them as to the design of the instruments themselves.

KELVIN & HUGHES (AVIATION) LIMITED
BARKINGSIDE & BASINGSTOKE

Sole Sales Concessionaires:
SMITHS AIRCRAFT INSTRUMENTS LIMITED
The Aviation Division of S. Smith & Sons (England) Ltd.
CRICKLEWOOD · LONDON · NW2 · ENGLAND *Telephone:* GLADSTONE 3333 *Telegrams:* AIRSPEED, NORPHONE, LONDON



HERCULES ENGINES

1000

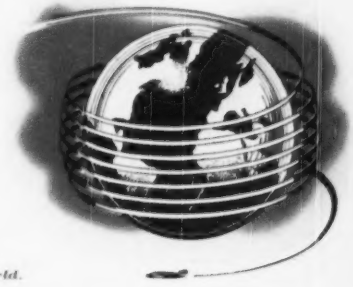
1,000 hours between overhauls . . .

The Hercules 634 engines used in Viking aircraft operated by Airwork Limited have now been approved by the Air Registration Board for 1000 hours operation between overhauls.

The previous approved life between overhauls was 900 hours and the extension to 1000 hours is the result of operating a trial batch of engines for this longer period. "Bristol" sleeve-valve engines run for their full period between overhauls without any attention apart from routine service maintenance of plugs, filters, etc. There is no top overhaul, and the full 1000 hours is completed without removing or changing any cylinder heads or pistons.

A notable feature of the steady improvement in overhaul life of these engines is the high proportion of the maximum permissible overhaul life that is achieved. Some operators have reached a figure as high as 97% and the average of all operators is about 91%. All engine changes, irrespective of the reason, are included in these figures.

The excellent reliability and economy achieved in service by the Hercules engine has given the sleeve-valve engine a high reputation among civil operators, and once again proves the suitability of Hercules and Centaurus engines for transport type aircraft.



1,000 hours between overhauls is equivalent to more than 7½ flights round the world.

THE "Bristol" AEROPLANE COMPANY LIMITED · ENGLAND